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Food and Nutrition Policy Here and Abroad*

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FOOD policy is a social and political weapon of no mean importance today. In the period immediately following the first world war very little was heard of it, it was not a subject of public discussion. Not until great food surpluses began to threaten the producers did it become a matter of wide public concern and debate. Yet food policies were adopted around 1925 which became the first links in a chain of events leading to the second world war. For the first guns fired in the war of economic nationalism, which was fought in the period between the two wars, were high tariffs and other economic weapons employed for the protection of agriculture. These measures were not taken in the interests of better nutrition or because greater food consumption was desired or as a means of bringing better food to the poorer classes. They were taken to improve a given country's trading position and to protect an agriculture whose products could not hold their own against foreign competition. High tariffs and similar trade restrictions provoke retaliation. So a chain of events was begun which led inevitably to more and more bitter economic nationalism. International trade flowed more and more slowly; the life blood of international intercourse grew anemic; agriculture in many countries became a wartime rather than a peacetime agriculture.

Unless drastic action is taken by the United Nations during and after the present war, precisely the same thing may happen again. As the occupied countries are liberated one by one, the pattern of agriculture which they will inevitably adopt will be the old pattern, the prewar pattern. And high tariffs to protect agriculture may again become the first guns fired in a new war of economic nationalism. For if the hungry millions are to be fed, all suitable land must be used for crops for

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direct human consumption, such as cereals, potatoes, and sugar. In other circumstances the interests of better nutrition would require increased livestock production and rapid restoration of dairy herds. But the immediate task as occupied countries become liberated must be to feed the hungry millions, and this can only be done if all suitable land is planted in crops which may be directly consumed. This policy, if carried far into the post-war years, will again bring surpluses which the world market cannot absorb. It will require the highest statesmanship on the part of the United Nations to call a halt at the proper moment and to persuade governments to transform agriculture with the object of promoting human nutrition rather than of achieving the chimera of national self-sufficiency.

When the bubble of false prosperity was pricked in 1929, governments were forced to recognize the growing problem of hunger among their people. I need not recall to you the signs and symptoms of social unrest in the early 30's which persuaded governments that their only course was to provide work allowances, food, shelter, and clothing to the depressed millions. Hunger and malnutrition side by side with food surpluses which could not be sold was a spectacle which men were not prepared to tolerate. Moreover something of the vast unfolding of new knowledge of human nutrition was being spread throughout the masses, so that public opinion could not brook the idea of malnutrition and misery in the midst of plenty.

Food policies adopted here and in Great Britain during the 30's were alike in some respects but differed widely in others. In both, attempts were made to provide for the distribution of food according to need, but in this country the policy was based upon the existence of food surpluses. We had the food stamp plan whereby foods in surplus supply were provided to a part of certain low-income groups. Surplus foods and WPA assistance were the basis for an extensive system of school lunches. Surpluses of fluid milk led to various schemes for its distribution free or at low cost. The great danger in our policy was of course the possibility that food surpluses eventually would disappear, which is precisely what has happened. In Great Britain the policy was to strengthen and expand existing social measures without regard to surpluses. For a time the results were very much the same in both countries—a notable improvement in the diets of a large part of the underprivileged—but when war came food surpluses disappeared and with them the basis of our food policy, while in Great Britain war brought decreasing food supplies and increasing need to insure its equitable distribution among the population.

WARTIME ACTIVITIES

In both countries much progress has been made since September, 1939. The food policy in Great Britain has been intelligently conceived along broad lines. It is based on the distribution of food according to physiological need, a guiding principle laid down by the Food Policy Committee and closely followed by the Ministry of Food. Food production in Great Britain has been nearly doubled; milk production has been increased and practically all of it goes into human consumption. Special attention is paid to the vulnerable groups, pregnant and nursing women, infants and children, workers and low-income groups. Less food is consumed by the well-to-do, more by the poor. Best of all, a watchful eye is kept on the people's nutrition by means of dietary surveys and clinical studies so that the onset of danger may be quickly recognized.

Our own food policy has not been

so wide. In the first place the disappearance of food surpluses has destroyed the foundations of our system of food distribution to vulnerable groups, and we have been floundering around to create a new system. Full employment, higher wages, and general wartime prosperity have led many to believe that there are no longer underfed groups in the population. We have no system of dietary surveys and broad clinical studies to enable us to recognize the onset of danger. Socially minded persons in and out of the government believe that many millions have not shared in wartime prosperity and are being squeezed between low fixed incomes and higher prices for food and other necessities.

Our War Food Administration is trying hard to obtain the funds for surveys, but has met with one obstacle after another. It seems to me that health officers and health departments should be particularly anxious to encourage and promote such surveys. If they would write or speak to their representatives in Congress urging the need to provide the necessary funds in the interests of public health, I believe their influence would make itself felt. Moreover, since the states are chiefly responsible for the health of their citizens, and good nutrition is the foundation of health, it would seem that state health and local departments might themselves undertake, by rapid surveys and clinical studies, to ascertain how their vulnerable groups are faring under wartime conditions. I cannot think of any more important task for health departments at this time, and I believe a growing appreciation of their rôle in food and nutrition would do much to increase the public's understanding of their importance.

There are some items which belong on the credit side of our ledger. Fluid milk consumption has been greatly increased because so many more people can afford to buy it. But this has been accompanied by shortages of milk in some areas, and among some classes. Moreover almost half of our skim milk never gets into human consumption except indirectly through the calf or the pig. Much of the valuable milk solids in the skim milk should be kept for human consumption; this is particularly important at a time when there is a growing scarcity of animal protein, not to speak of the need for supplementing to the utmost the individual's intake of calcium. We have had some success in the feeding of war workers but here as in England much remains to be done in this field. And both here and in Great Britain the nutritional value of bread has been greatly improved; here by the restoration to flour and bread of those important nutrients which have suffered the greatest loss in milling, and in Great Britain by the use of an 85 per cent extraction flour instead of the more usual 72 per cent extraction.

POST-WAR NUTRITION PROBLEMS

Health officers and authorities in nutrition are confronted with immediate and important problems. But the post-war issues transcend all others. Food policy may be important now; it will become vital to world safety after the immediate task of feeding the hungry millions has been accomplished. What can we say about the United Nations' post-war food and nutrition policy? Fortunately some profit has come out of the bitter lessons of the past. The first conference of the United Nations on post-war issues was the conference on food and agriculture at Hot Springs, potentially one of the most important conferences ever held in any country. Without doubt one of the first international institutions to take form during or after the war will be the permanent organization in the field of food and agriculture recommended by the

conference. The food and nutrition policy of the United Nations is set out in the report of the conference; the responsible leaders of at least two of the four great powers have declared that they accept the far-reaching recommendations adopted at Hot Springs. Steps are being taken to draw up the plan and to formulate the constitution of the permanent organization. An Interim Commission, composed of a representative of each of the governments represented at Hot Springs, is dealing with these and other matters. It has recently set up panels of scientific and economic experts to advise it on the form and work of the permanent organization.

The keynote of the conference was that freedom from want means a secure, an adequate, and a suitable supply of food for every man. This goal, the conference declared, can be achieved. Thus nutrition was given its proper place as the guiding principle of food policy in every country. The only method of avoiding a return to the anarchy and economic nationalism of the past, is to make public welfare the sole criterion of food policy.

The Final Act of the conference contains 23 recommendations and resolutions; it includes 26 pages of reports on various aspects of food and agriculture. Every health officer and every nutritionist should obtain a copy and study it seriously, for it is a chart of the future course of the United Nations in food, nutrition, and agricultural policy, and it provides for the national and international mechanisms which will make possible international collaboration for the welfare of all.

These mechanisms are:

A permanent international organization for food and agriculture, possibly with regional branches.

A national nutrition organization in every country whose business it will be to formulate national food and nutrition policy.

Periodic meetings of representatives of national nutrition organizations under the auspices of the permanent organization.

The obligation of adhering governments to increase the food resources and improve the diets of their people, and to report to one another through the permanent organization on the state of their national nutrition and on the steps being taken for its improvement. Long experience in international cooperation has demonstrated that the obligation of governments to report periodically to one another is one of the best ways of assuring improvement and progress.

In contrast to 1918, when post-war issues and international relations were thought of mainly in political terms, the Hot Springs Conference dealt technically with food, nutrition, and agriculture, subjects of vital interest to ordinary men and women throughout the world. It was clear that at Hot Springs the common man and woman held the center of the stage. The conference painted a picture of how common men and women would profit in diet and health in a post-war world in which nations would work together for the welfare of all. It was a long step forward on the road to sanity in the field of food and nutrition policy.

Vital and Health Statistics in the Federal Government*

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THERE are some 25 federal agencies that routinely handle health statistics including deaths, illnesses, and physical examination findings. In terms of the numbers of records processed, the Division of Vital Statistics of the Bureau of the Census has been the largest of these organizations during peacetime, but with the tremendous increase in the size of the armed forces, the Medical Statistics Division of the Army probably exceeds it, and the Division of Preventive Medicine of the Navy rivals it.

The Division of Vital Statistics handles annually something like 2½ million live births, 75,000 stillbirths, and nearly 1½ million deaths for the country as a whole; it also tabulates about 750,000 marriages in 28 states and 50,000 divorces in 12 states. These data are processed from individual records for each event. In addition the division publishes data on patients in hospitals for the insane and mentally defective which are assembled from reports from institutions.

Because of the large number of detailed tabulations appearing as Special Reports prepared in addition to the Annual Vital Statistics volumes, the work of this division is even larger than the number of records processed would indicate.

The job of the Medical Statistics Division in the Office of the Surgeon General of the Army is the tabulation of various kinds of information about sickness, accidents, and battle casualties in the Army, and physical findings on examination of persons entering the Army.

The Medical Department of the Army assumes responsibility for the health of the soldiers, and provides a complete system of medical and hospital care. Every illness and accident for which the soldier is excused from duty for 24 hours or longer is recorded as an admission to sick report, and facts about it are tabulated, including diagnosis, days sick, and whether fatal or nonfatal. In the peacetime Army, annual admissions to sick report amounted to roughly 700 per 1,000 soldiers; the magnitude of the tabulating job with the present strength of the Army is evident, even when details are omitted from all except a sample of the cases. In the peacetime Army disability per soldier per year amounted to about 11 days, and about 10 of those days were spent in a hospital. The excellence of this medical care may be seen by contrast with the civilian population with roughly 1 day of hospital care per person per year, or about one-eighth of the days of inability to work or pursue other usual activities.

The Army Air Force has a vital statistical setup that is more or less independent of other statistics of the Army; however, the tabulations of

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sickness made by the Medical Statistics Division cover all branches of the Army.

The Navy provides similar medical care to its sailors and marines, with annual admissions to sick report during peacetime of roughly 500 per 1,000 sailors and about 9 days sick per sailor per year. The Navy Department makes the same types of tabulations as the Army. Although the total strength of the Navy is far less than the Army, annual admissions of 500 per 1,000 persons provides a lot of records for tabulation.

The Army and Navy sickness records are unique in that they refer to a definitely known population group. Although selected from the point of view of age, physical status, and conditions under which they are living, the trends of sickness in these groups are of definite interest. For the Army annual sickness rates from all causes and from many specific causes are available for nearly 125 years. Similar records for the Navy are available for long series of years.

Both the Army and Navy maintain in some form a Medical Intelligence Service whose functions are to supply detailed information on health conditions in countries in which the armed forces are likely to operate. The Division of Foreign Relief and Rehabilitation of the State Department collects similar data and also facts about medical and hospital facilities.

The Veterans Administration is already dealing in large numbers of vital records and is due for an increase. In 1942 it gave about a million clinic treatments to about 300,000 individuals, made about 900,000 examinations, and admitted 200,000 persons to hospitals. Unlike the Army and Navy, the Veterans Administration does not have a definitely known population, so is unable to compute illness rates.

Statistics in the Public Health Service are not centralized. The weekly, monthly, and annual tabulations of reported cases of notifiable diseases are handled in the Division of Sanitary Reports and Statistics, being received in tabulated form from state and city health departments. The same division publishes reports of quarantinable diseases which are received from foreign countries. The Hospital Division receives and tabulates data on admissions to the 26 Marine hospitals and on treatments in outpatient departments of those hospitals and in other Public Health Service clinics. In 1941 there were about 70,000 admissions with nearly 2 million days of hospital care, and 1½ million clinic treatments of nearly ½ million patients. The most numerous patients are Merchant Seamen, but the Public Health Service also renders medical care to the Coast Guard, to injured federal employees, and to about a dozen other types of beneficiaries. Similar records for the two large hospitals for drug addicts are handled by the Mental Hygiene Division. The statistics of the Venereal Disease Division include special research problems and also data collected in the course of the administration of the coöperative program for the suppression of venereal disease. Two large volumes on serological tests for syphilis among Army selectees have been published.

Statistics in the National Institute of Health are concerned almost entirely with special studies. The major part of the special statistical studies is done in two divisions. The statistical work of the Division of Industrial Hygiene is concerned largely with the health of industrial employees and that of the Division of Public Health Methods with illness and medical care in the general population, and with personnel and facilities available for medical care.

The Children's Bureau of the Labor Department handles a considerable

volume of health statistics, particularly in connection with the administration of laws for the improvement of maternal and infant care, for the aid of crippled children, and for the medical care of wives and infants of men in the armed forces.

The Bureau of Labor Statistics has for many years carried on research in the field of accident classification, accident frequency in representative industries, and time lost on account of industrial accidents. The Bureau of Mines of the Interior Department deals extensively in statistics of mine accidents.

The Employees Compensation Commission administers accident compensation for employees of the federal government, for private employees on navigable waters, and for private employees in the District of Columbia. During the depression this commission also assumed responsibility for injuries of persons on emergency relief work. During 1940 there were some 350,000 injuries reported, but by no means all of them were compensation claims.

In the Social Security Board, the Division of Health and Disability Studies, the Office of the Actuary, and the Bureaus of Public Assistance, Old-Age and Survivors Insurance, and Employment Security all deal in a considerable amount of health statistics. The Division of Health and Disability Studies has concerned itself largely with disability, medical care, and related matters which have or are likely to come up for consideration in connection with the extension of the types of insurance covered by the social security law. The Bureau of Public Assistance collects and analyzes data on the causes of blindness among persons receiving pensions for the blind; it also handles data on chronic diseases and impairments of the parents of children who receive compensation under the dependent children's law. The Bureau of Employment Security collects and analyzes data on physical impairments and chronic diseases which constitute a special problem in employment placement.

The Office of Education in the Social Security Agency has charge of vocational rehabilitation and is interested in handicapped individuals from that point of view. Its annual reports show the types of impairments and diseases of persons in rehabilitation training during the year.

The Wage and Hour Division of the Department of Labor gets into vital statistics because the law under which it operates authorizes exceptions to permit employment at less than standard rates or hours of persons who are unable to do a full day's work. The consideration of applications for exceptions involves not only chronic diseases and impairments, but also the more severe acute diseases causing only temporary disability in which the person wants to work during convalescence.

The Bureau of Prisons of the Department of Justice has under its charge persons in federal penitentiaries. The medical work in these institutions is done by officers of the Public Health Service supplemented by employees of the Bureau of Prisons. In 1941, in an institutional population of about 18,000, this work included a daily average census of about 1,500 hospital patients with more than ½ million days of hospital care. Some 100,000 medical and dental examinations were given.

The Farm Security Administration tabulates data on admissions to hospitals in connection with insurance plans for rural areas, which it sponsors. In addition, it has conducted physical examinations of a group of rural families to whom relief has been extended, with the idea of finding whether physical condition was a factor in the need of the farmer for relief.

The Tennessee Valley Authority

handles a large volume of both entrance physical examinations and accident statistics among employees on its projects.

The Coördinator of Inter-American Affairs has a Health Division which supports large projects for the protection of the health of workers producing war materials in the various Central and South American countries. Thus considerable data are collected on illnesses treated in clinics and hospitals operating under that organization. Although not a part of the United States Government, the Sanitary Bureau of the Pan American Union also collects and makes available to the American and other governments data on the prevalence of disease in Central and South American countries.

The Procurement and Assignment Service of the War Manpower Commission is charged with procuring physicians and dentists for the armed forces without disrupting civilian medical care. In carrying out these functions, this organization has, in coöperation with the National Institute of Health and the American Medical Association, collected a considerable body of information about the geographic distribution of medical personnel and facilities, the probable future effect upon civilian medical care of the medical recruitment program of the Army and Navy, and similar trends set in motion by the withdrawal of a large proportion of the young doctors from civilian practice.

During its existence, the National Resources Planning Board issued several studies of the health of the nation, usually as chapters in reports on more general subjects.

The agencies thus far discussed deal in some phase of health statistics other than physical examinations. The number of organizations collecting physical examination data is larger than the number handling other types of vital records. At a meeting called in 1941 by the Division of Statistical Standards of the Bureau of the Budget to consider the feasibility of standardizing the methods of coding physical findings, there were 23 representatives from 17 federal organizations which were making physical examinations and were tabulating, or expected to tabulate, the medical findings from them. The fact that so many organizations were represented shows considerable interest in this phase of health statistics.

The tabulation of the findings from the examinations of the millions of men for the Army by Local Boards was undertaken by Selective Service Headquarters. Two reports have thus far been issued on the prevalence of physical defects; the first was based on about 20,000 persons, and the second on 122,000, representing a 10 per cent sample of examinations made in 21 states prior to October, 1941.

The Railroad Retirement Board makes about 15,000 medical examinations per year of persons applying for retirement. Careful consideration is given to each case to assess the extent of the disability of the applicant. A tentative code has been set up for reporting the results of the findings at annual or other intervals.

In 1940, the Civil Service Commission added about 2,200 to its rolls of retired disabled persons. Each was medically examined and found to have some impairment or disease which justified retiring the individual. An unknown number of other persons must have been examined but not retired. The chronic diseases of persons retired for disability are shown in the Annual Report of the Commission, and also the causes of death of about 1,100 persons who died during 1940 out of the 15,000 on the retired rolls at that time.

The National Youth Administration examined in 1941 nearly 150,000 youths 16 to 24 years of age. The findings were analyzed in coöperation with

the National Institute of Health and published in detail. Originally it was the intention to examine all new entrants to N.Y.A. projects, but this aspect of the plan was abandoned even before the organization was abolished.

The Works Projects Administration had detailed plans for the examination of all of its workers to determine their fitness for the specific work to which they were assigned, but the project never got far beyond the planning stage. Some examinations were done in certain areas.

These many government agencies are all interested in vital and health statistics of the kinds mentioned above. There are no doubt other agencies which I have failed to mention in this brief summary. Some organizations are actively tabulating and publishing the results either as special papers or in annual reports. All are extremely interested in making more use of these various kinds of health statistics collected in connection with the administration of their organizations. Few if any are interested in any form of consolidated statistical organization which would take the data out of the hands of the people who have collected them and are most interested in them.

State Support of Industrial Hygiene Services—An Urgent Necessity*

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THE emergence of industrial hygiene as a major public health responsibility demanded by the war's critical need to save manpower has raised a vital question. Are we making adequate plans to hold the ground that has been gained, and to extend industrial hygiene services on the scale necessary for the successful maintenance of war production? There is much current discussion of post-war planning, which is admittedly essential for making the tremendous readjustment that will come with the war's end, but in industrial hygiene there remains imperative need for concentration on the immediate problems connected with winning the war. There is actually only a skeleton force of industrial hygiene services to meet the increasing demands of continually expanding industrial production. More personnel, more equipment, and better administrative organization are needed for the gigantic task of assisting all war industries on a multitude of health problems affecting production. The admirable improvement of industrial hygiene facilities achieved since the war began can be considered only a beginning of a program which must be further developed in the coming months.

A second question naturally follows —Who should assume the responsibility for this expansion of service? The answer is indicated by the nature of the job and by present trends. State and local health departments are the agencies which have an inherent responsibility for providing industrial hygiene services as an essential complement to all other activities of the official health program, second to none in importance. The character of this obligation is already indicated by the demands being made of existing services and the size of the task overwhelmingly evident in an appraisal of the dimensions of the growing labor force.

There are an estimated 54,000,000 workers engaged in production in this country, many of whom are women, young people, old persons, and handicapped individuals. Each day thousands of new industrial workers, replacing those called to military service, are being exposed to unaccustomed strains and dangers. New materials and new processes in manufacturing require study and careful control to eliminate hazards. Increased hours of work and higher speed of production expose workers to more risks and to fatigue. As a consequence of these factors and conditions of crowded living in industrial communities, there is increasing disability among industrial workers from both occupational disease and ordinary causes of sickness. However, complete information on the extent of occupational disease morbidity and mortality is lacking because of insufficient industrial health service, and

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inadequate reporting of known cases.

A sizable army of industrial hygiene specialists is needed to cope with all these problems at every level. How far have we advanced in organizing and training personnel to meet this challenge? In answering this question, we immediately note that industrial hygiene has only recently been generally recognized as a field in which state and local health departments should take action. We must all share the blame for this belated acceptance of industrial hygiene as a fundamental public health function, and acknowledge that it has been too long neglected in this country.

The Conference of State and Territorial Health Officers has frequently included discussion of industrial hygiene in its annual meetings, but little action resulted from these deliberations. This association should be credited, however, with maintaining interest in the general problem.

The U. S. Public Health Service admits for its part that it had not been exerting sufficient leadership in stimulating the states to take on industrial hygiene activities prior to 1936. From the time the Office of Industrial Hygiene and Sanitation was established in the Public Health Service in 1914 until that year, the work of the Division had been concentrated on investigations and surveys of industrial health hazards in the field, and in experimental laboratory studies. In 1914 there were only 2 states that had organized divisions of industrial hygiene, and in the interval before 1936, when real expansion began, only 4 more states had added this activity. Then the federal government began to take effective action, realizing that the extension of desirable industrial health practices languished for lack of promotion on the part of the federal and state governments. The Social Security Act of 1935 made possible, among other benefits, the setting up of a definite plan for establishment of industrial hygiene divisions in the states. In 1936 10 states added this function to their health department program with the aid of federal grants-in-aid. Each succeeding year since then more states have developed industrial hygiene divisions until there are now 38 states carrying on such activity.

Expansion within the states is now going on in equally vigorous fashion. Four states have already established local divisions in city and county health departments, and one other large state maintains district laboratories. The Division of Industrial Hygiene, National Institute of Health, in the Public Health Service has helped in each step of this development by providing advisory service on both technical and administrative problems. Surveys of all industrial health hazards in certain states have been made to provide evidence on which requests for appropriations could be based in setting up new state services.

The responsibilities which the state units are assuming cover a far wider field than was originally conceived. When industrial hygiene personnel visit an industry today they are presented with all kinds of problems for solution, and in turn are prepared for more varied requests than formerly when investigation of a specific occupational hazard was the only service expected on a plant visit. Today the representative of the Industrial Hygiene Division may be confronted with questions on sanitation, nutrition, communicable diseases, medical care of injuries, nursing duties, safety and health education, and a variety of related problems in addition to health hazards of work processes.

From the health department point of view, the changes in public health practice in other special fields, and the general recognition of the expanding function of health departments have been influencing the scope of industrial hygiene activities. Health administrators

are now more aware of their responsibility to extend health services to all people of their communities, and to find new ways of carrying these services to the groups who most need them. The factory is found to be a strategic place in which a large proportion of adults can be provided health services, in the same manner that the school has long served as a center for child health programs.

The much publicized facts of industrial absenteeism point out the health department's responsibility to industrial workers. It is neither accidents nor occupational diseases which cause the greatest amount of lost time from work, but the everyday causes of illness common to adults. Most state and local departments have already established services to deal with many of these problems of adult health, including tuberculosis, venereal disease, cancer, dental hygiene, mental hygiene, maternal health, and nutrition. At the same time that the health department attempts to extend these services to workers, industry is seeking the various services which health departments have to offer. It is logical that industrial employers will turn to the division of industrial hygiene for assistance in securing health department services, having first hand acquaintance with this branch of the department. It follows that the division of industrial hygiene can well act as a liaison for the other divisions of the state health department and make initial contacts with industries in arranging to have the desired services brought to industrial workers.

In addition to this coördinating function within the health department, the state division of industrial hygiene has equally important responsibilities in maintaining working relationships with other state agencies and organizations. Chief among these agencies are the state department of labor, and the industrial accident commission. Factory inspectors employed by the departments of labor to check safety measures have in some instances received training for detection of occupational disease hazards through cooperative arrangement with the divisions of industrial hygiene. Industrial accident commissions can furnish the industrial hygiene service with information on occupational diseases reported to that agency as required by law. For example, such a working arrangement is in effect in California, where the division of industrial hygiene in the health department makes investigations of the cases reported to the commission. In this state factory inspection is a responsibility of the commission. The inspectors call upon the industrial hygiene service to make technical investigations of potential health hazards which they have found in the industry. The results of these surveys are reported to the commission, since that agency is legally responsible for enforcing rules and regulations concerning protection of the health of workers. Similar relationships have been developed in Wisconsin.

In most states there is a belief that the state health department should operate in this field only on an educational plane, using its findings to persuade management that changes for correction of hazards are necessary. Education is the first approach, as in other health department activities, but the authority which may be needed in certain cases is not lacking, since every health department has sufficient power in its basic laws to take action for the prevention of occupational and other diseases.

Another function of the state health departments related to the investigation of factory conditions and securing control of hazardous conditions is the reporting of occupational diseases. In some states the law requires reporting of these diseases, usually to the health

department. However, comparatively small numbers of cases are reported in most states, which suggests that the state health department has an obligation to carry on an educational program on this specific problem. Physicians must be better informed on the nature and evidences of occupational diseases, particularly those likely to occur in the industries of their respective communities. They must acquire the same concern to report occupational disease as they generally have for reporting of communicable diseases.

Still another responsibility of state public health administrators is the establishment of adequate rules and regulations aimed at preventing occupational diseases through control of hazards. In a few states the health department is especially charged with this responsibility, in others the state agency so designated rightfully expects technical assistance from the health department. For example, the Maryland Compensation Law explicitly ascribes the duty of formulating, adopting, and administering rules and regulations designed to prevent and control occupational disease to the State Health Department and to the Baltimore City Health Department.

Similar coördinate functions of state agencies in the matter of dealing with investigation of cases of compensation claims is needed. North Carolina furnishes an example of this type of coöperation. The occupational disease law of the state provides that the Industrial Commission shall adjudicate the law and shall make investigations of health hazards in certain industries where a silicosis and asbestosis hazard exists. The commission has designated the State Board of Health as its agent and all investigations and physical examinations are conducted either by the State Board of Health or under its supervision. Public health administrators in other states should be prepared to render such services whenever called upon to do so, unless specific legislation prohibits the use in litigation of the results of investigations.

It is sometimes claimed that industrial hygiene should be administered under the direction of those agencies concerned with enforcing labor legislation such as factory inspection, wages and hours of labor, and workmen's compensation. The rôle which a health department should play in connection with compensation cases should be that of an impartial investigator of industrial health hazards. Placing such a function in the hands of the compensation agency would do away with the wholly impartial activities which we feel should be preserved.

In every state there are various non-official agencies and groups interested in promoting particular phases of industrial health with whom the state health department needs to develop effective working relationships. Among these is the state medical society, which has followed the leadership of the Council on Industrial Health of the American Medical Association in setting up a state committee for industrial health. Local medical societies are likewise being urged to develop such committees for the purpose of stimulating physicians to take active part in meeting local industrial health needs.

The state manufacturers associations are becoming more sensitive to the problems of industrial hygiene and may generally be counted on to give support to the program of the state health department. In the same manner, chambers of commerce are taking active interest under the guidance of their national Committee on Industrial Health.

Labor unions are coming to appreciate their own vital stake in the extension of industrial health services, and are making their wants and needs felt. Frequently state divisions of in-

dustrial hygiene receive requests from unions for help in investigating hazardous or unhealthful working conditions affecting their members, and for information concerning these hazards. Health departments can evolve plans for working with the labor-management health committees established in industries under the sponsorship of the War Production Board. These committees are found to be useful intermediaries for promoting all types of industrial hygiene and general health activities within the plant. They should be provided with suggestions for carrying on continuous programs.

Professional training and refresher courses are another field of responsibility for directors of divisions of industrial hygiene. Short institutes are needed for physicians, engineers, and nurses already engaged in industries to bring them up-to-date on handling the newer problems, and on the latest technics. New personnel require complete courses covering the fundamentals of their work and the relationships of the health program to the other functions of industrial management. Such courses can be developed in coöperation with universities, medical societies, industrial nursing associations and engineering societies, as many state and local industrial hygiene divisions have already shown.

Coöperation should also be given to the state departments of education for development of instruction on industrial hygiene in vocational school training courses, and in the local program of Engineering, Science, Management War Training Courses sponsored by the U. S. Office of Education.

These are only brief suggestions of the major responsibilities of a state division of industrial hygiene, but they should suffice to indicate the broadened conception of the functions of such a division. Further arguments are not needed to show that substantial support must be provided for such an important service if it is to maintain the confidence of industry and all the agencies now looking to it for assistance.

Total appropriations for these state and local units for the fiscal year 1943–1944 have now reached the sum of $1,222,295. Forty-nine and eight-tenths per cent of this total is derived from federal grants-in-aid, a slightly smaller percentage than that of the past year, since a number of states have increased the state's appropriation for this year.

When we consider the varying amounts of self-support given by the individual states to maintain their divisions of industrial hygiene, it is found that 6 states and 1 county are securing all their funds from federal grants. Seven states and 1 city depend upon federal funds for over 75 per cent of their budget for industrial hygiene. Twelve states and 1 city are aided to the extent of 50 to 75 per cent. Seven states are receiving 25 to 50 per cent, and 4 states require less than 25 per cent of federal funds. Finally, there are 4 states and 4 city divisions which receive no federal assistance, maintaining their programs entirely on their own appropriations.

During this emergency, the states are receiving much additional assistance beside federal grants in the form of loan of personnel from the Public Health Service.

Approximately 60 persons, including physicians, engineers, chemists, a dentist, and 3 nurses, are now loaned to 27 states. In several of these states these workers constitute either the entire staff or a major part of the state division. Special war appropriations made under the Emergency Health and Sanitation Act have provided for the establishment of this plan to loan both personnel and equipment to states. At the present time, states are requesting more personnel than are available, since

there has been a limiting of the number that can be added to the Public Health Service staff.

A number of states are successfully finding the only possible solution to the problem, i.e., to secure adequate state appropriations to maintain at least the minimum essential personnel to carry on their industrial hygiene programs. The obligation of the states clearly lies in this direction, since the loan of personnel by the U. S. Public Health Service can be expected to terminate with the end of the war. State health department administrators should be planning not only to replace their borrowed workers, but to augment their present staff with sufficient numbers of the various professional personnel needed to conduct an adequate and balanced program. Only 14 of the 38 state divisions have staffs consisting of more than 4 professional employees.

The total number of state personnel provided for in the budgets of state and local industrial hygiene units for the fiscal year 1943–1944, is 354. Of this total, 46 are physicians, 141 are engineers, 45 are chemists and other technical workers, 22 are nurses, 1 a dentist, and the remainder—100, are clerical workers.

Each state division should have on its staff as the minimum essential personnel to conduct industrial health surveys, a physician, an engineer, a chemist, and a nurse, supplemented by a clerical staff to assist in making reports and keeping records. Large units will require a number of each of these types of personnel. A new development is provision of advisory service in the special field of industrial dentistry. Three states have pioneered in this direction by employing a dentist to promote dental services in industry as a part of the industrial hygiene program. Already health education programs in industry require the addition of a health educator to state health department staffs for full-time assistance on industrial health education.

The essentiality of these industrial hygiene services cannot well be questioned by state legislators if the case be properly presented to them. Persuasive facts and dramatic evidence of accomplishments and needs should be brought before them now while public support can be counted on.

If action is not soon taken we may witness a demobilization of some of the state industrial hygiene units when the retrenchment of federal support takes place at the end of the war.

The type of program needed has been well demonstrated by the U. S. Public Health Service and a number of well organized state and local divisions of industrial hygiene. The Public Health Service stands ready to give continuing help to states in preparation of information for requesting state appropriations. In a recent instance, for example, a representative of our Division of Industrial Hygiene accompanied the state health commissioner of a western state on a visit to the governor, and succeeded in obtaining $20,000 from emergency funds for urgent needs of the state's division of industrial hygiene.

The appeal for state appropriations can be presented as an immediate emergency need, and at the same time postulate a permanent program to meet peacetime requirements. If need be, these requests can be met by some adjustment of the total state health department budget, curtailing some less essential activity. Too often budgets and programs once established are continued each year because inertia prevents the making of an objective appraisal of the relative merits of various programs. Now is the time for critical review of state and local health department activities, while other revolutionary changes are making adjustments easier to propose.

To make an adequate estimate of a

state's needs in industrial hygiene services, the health administrator may first have to acquire a deeper understanding of the subject, particularly if he has not had training in the field, or familiarized himself with recent developments. There may be a tendency for health officials to regard industrial hygiene as an especially technical field in which they may honestly admit having no more than a speaking acquaintance. One aid for dispelling such feelings is the *Manual of Industrial Hygiene* recently prepared by the Division of Industrial Hygiene, National Institute of Health.

The workers who receive the ultimate benefits of an industrial hygiene service deserve our best effort and consideration. They are giving their best to produce war materials which are saving us all, and the nation is thankful for their magnificent accomplishment. These home front battalions should be assured that there will be no let down of the protective program securing their own lives and health as they continue to give our fighting men the weapons for victory.

The industrial workers of our country have a right to this confidence in their health departments. For the future, they should have hope of greatly improved health safeguards in their working places as a part of the promise of a better world for all. Now is the time for laying foundations to secure these hopes.

A Severe Epidemic of Meningococcus Meningitis in Chile, 1941-1942*

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A SEVERE epidemic of meningococcus meningitis occurred in Chile in 1941–1942 (Chart 1). From June, 1941, until December 31, 1942, there were reported 5,885 cases with 928 deaths (a case fatality rate of 15.9 per cent).

As far as we know, Chile, which has a population slightly over 5,000,000, had never previously suffered an epidemic of meningococcus meningitis, except for a small outbreak of 10 cases in 1938 in a navy training school on an island. In the preceding years, only a few cases were reported annually; a total of 53 cases from 1932 to 1940, inclusive. Our population, therefore, apparently had little immunity against the disease and this fact might explain the very high incidence in this epidemic. Furthermore, the poorer classes of the population live in very crowded conditions and a survey made some time ago in the slum sections of Santiago showed an index of 7 persons per room, and an index of 2.9 persons per bed. The nutritional status of these people is rather poor, and even the weather was against us, since the winter of 1942 was particularly cold, compared with our usual climatic conditions. So we had all the requirements for the epidemic spread of a disease transmitted via the respiratory tract—lack of natural immunity, overcrowding, and conditions that would decrease individual resistance, such as poor nutrition and becoming chilled.

The epidemic began in Valparaiso, our main port. The first cases were reported from a welfare institution for children, in June, 1941, spreading rapidly through the city and then over the whole province of Valparaiso. This province has a population of 433,233 people, according to the 1940 census. The attack rate per 100,000 population in this province was 89.2 for 1941, and 188.1 for 1942.

In Santiago the first case was reported on August 25, 1941, in a young soldier. Another case occurred in another soldier within 3 days. These two men belonged to an engineers' army school. In the days immediately preceding their illness they had been working very hard in connection with some floods which occurred near the capital, and had been subjected to prolonged exposure in cold water and to strenuous physical work. The third case was in a daughter of one of the contacts of the soldiers, and the fourth case was in an army physician, who had not had actual contact with the patients, but who worked very closely with a physician who took care of the soldiers.

Knowing the particularly favorable conditions for the spread of an epidemic, we were very worried, but at that time the incidence in Santiago did not become particularly alarming. The

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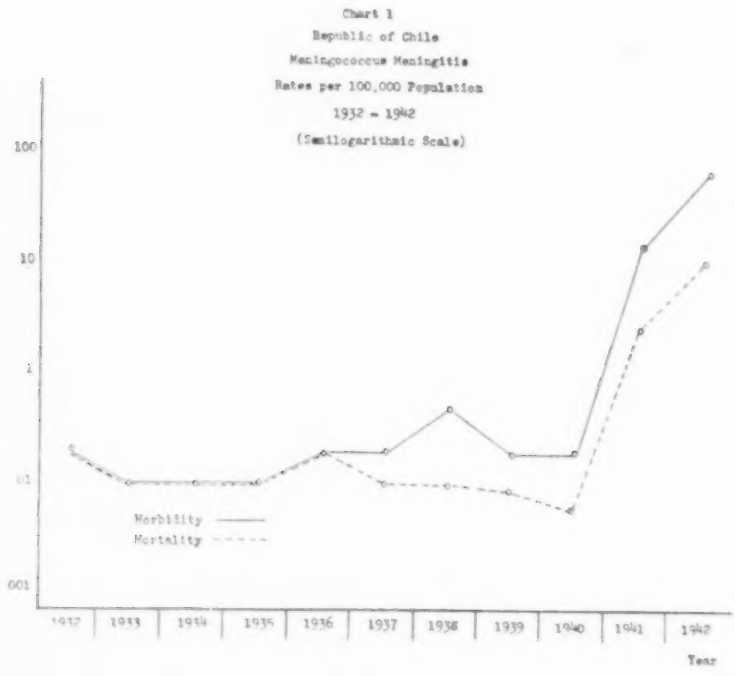

TABLE 1

Republic of Chile

Meningococcus Meningitis

Cases per 100,000 Population

Province	*1941*	*1942*	*Province*	*1941*	*1942*
Tarapaca	1.9	2.9	Nuble	0	3.2
Antofagasta	2.1	384.5	Concepcion	1.0	24.6
Atacama	0	11.5	Arauco	0	0
Coquimbo	0	2.0	Bio-Bio	0.8	6.9
Aconcagua	0	97.9	Malleco	1.3	0.6
Valparaiso	89.2	188.1	Cautin	0.3	5.5
Santiago	23.0	261.6	Valdivia	0.5	5.6
O'Higgins	1.0	35.0	Osorno	0	1.6
Colchagua	0	22.7	Llanquihue	0	4.2
Curico	1.2	18.1	Chiloe	0	1.0
Talca	0	10.0	Aysen	0	0
Maule	0	8.4	Magallanes	0	6.0
Linares	0.7	15.2			
			Total	13.6	101.3

attack rate per 100,000 population that year for the whole province was 23, a figure by far below that for Valparaiso (89.2). However, in the winter of 1942 the epidemic took an explosive form in Santiago, and the incidence for that year was 261.6 per 100,000. The epidemic, which in 1941 was localized in our two main cities, Santiago and Valparaiso, spread in 1942 all over the country, mainly in the northern and central zones and relatively sparing the southern one, as can be seen in Table 1, in which the provinces are shown in order from north to south.

AGE DISTRIBUTION

In Table 2 the age-specific morbidity and mortality rates are presented. As was to be expected, the

TABLE 2

Province of Santiago

Meningococcus Meningitis

1941–1942

Rates per 100,000 Population

Age Group	1941				1942			
	Morbidity		Mortality		Morbidity		Mortality	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Under 1	21	56.5	13	35.0	319	838.1	108	283.8
1–4	51	41.1	10	8.1	767	601.6	189	148.2
5–9	54	44.4	7	5.7	618	503.2	78	63.5
10–14	46	41.3	7	6.3	538	476.5	30	26.6
15–19	37	26.0	9	6.3	386	264.3	26	17.8
20–24	25	17.4	8	5.6	248	167.9	15	10.2
25–34	28	12.3	4	1.7	361	153.9	36	15.3
35–44	17	10.9	3	1.9	218	136.6	31	19.4
45–54	9	8.7	4	3.9	94	88.4	15	14.1
55–64	2	3.6	2	3.6	32	56.3	10	17.6
65 and Over	..	....	..	....	21	54.8	11	28.7
Total	290	23.0	67	5.3	3,602	279.1	549	42.5

younger age groups suffered higher morbidity and mortality rates.

HOUSEHOLD SECONDARY ATTACK RATES

In order to study the secondary attack rates among the contacts of cases, 9,668 individuals living in the same households of actual cases were studied, according to age and the degree of overcrowding. The data are given in Table 3, from which we can make three statements: (1) 2.5 per cent of the contacts acquired the disease; (2) the secondary attack rate was higher among those under 15 years of age; and, (3) there was a statistically significant difference between the rate among those living under slight conditions of overcrowding and the rate for those living under conditions of severe overcrowding.

CARRIERS

No meningococcus carrier survey had been made of the population prior to the epidemic. During the outbreak, carrier surveys were made of various groups. A total of 12,870 individuals were cultured, among whom 429 carriers were found, giving a rate of 3.25 per cent. The rate varied from 1 per cent among the beggars in the "flop houses" (in the open all day), to 55 per cent

TABLE 3

Republic of Chile

Meningococcus Meningitis

1941–1942

Household Secondary Attack Rates

Degree of Overcrowding	Under 15 Years of Age			15 Years of Age and Over			All Ages		
	Number of Contacts	Number of Cases	Per cent	Number of Contacts	Number of Cases	Per cent	Number of Contacts	Number of Cases	Per cent
Slight	627	21	3.3	1,225	16	1.3	1,852	37	2.0
Moderate	2,059	79	3.8	2,619	40	1.5	4,678	119	2.6
Severe	1,544	64	4.1	1,594	27	1.7	3,138	91	2.9
Total	4,230	164	3.9	5,438	83	1.5	9,668	247	2.5

among the 18 men in the barracks with the 2 soldiers forming the first 2 cases.

An attempt was made to study the action of the sulfa drugs in eliminating the carrier state but, unfortunately, we had to suspend our study due to shortage of sulfa drugs. Our figures are too small to form a basis for conclusions.

TYPES OF MENINGOCOCCI

During the 4 years preceding the epidemic only 12 strains of meningococci had been recovered. Six belonged to Group III, 4 were Group I, and 2 agglutinated both Groups I and II. No Group II or IV meningococci were found.

During the early part of the epidemic, 116 strains of meningococci isolated from carriers and 53 strains from spinal fluid were typed. Among the strains isolated from carriers, Group I was more frequent than Group III (26.7 per cent compared with 3.4 per cent). Of the strains, 69.8 per cent could not be typed. Groups II and IV were not found.

Among the strains isolated from spinal fluids, on the contrary, Group III markedly exceeded Group I: 75.7 per cent compared with 9 per cent in Santiago; 70 per cent compared with 30 per cent in Valparaiso. The percentage of strains which could not be typed was low (9 per cent in Santiago and none in Valparaiso). Three strains were found in Santiago that agglutinated both Groups I and III, and were classified as intermediate strains. In neither city was Group II or Group IV found.

Without giving the technic of isolation and typing in detail, suffice it to say the swabs were streaked on the blood agar plates within 3 hours after they had been taken. Non-pigmented strains fermenting glucose and maltose were tested with the specific sera prepared with the standard strains of Sarah Branham.

The above figures as to groups are probably too small to be conclusive. The study has been continued but the results are not available as yet.

ADMINISTRATIVE PROBLEMS

Having given some of the epidemiological and bacteriological aspects of the epidemic, I would like to present now in some detail the administrative problems associated with the control of the epidemic in Santiago.

As stated before, in 1941 the epidemic was not very alarming for a province the size of Santiago (1,261,717 population). The maximum number of cases reported weekly was 24. During the first 6 months of 1942 the situation improved in that only 325 cases were reported, the weekly incidence being as low as 2 cases during the 12th week, and as high as 34 in the 26th week. However, during the first days of July (our winter), coinciding with a very low temperature for our usual climatic conditions, the epidemic took on an explosive form.

Of the 3,602 cases reported in 1942 in Santiago, 3,277, or 91 per cent, occurred during the second half of the year. In a few days we passed from an average of 22 cases per week during the preceding 2 months to 25, 40, 60, and even 75 cases *a day* at the peak of the epidemic. The public was seized with panic. As an example of the terrifying manner in which the disease struck some households, in one family of 9 persons there occurred 4 cases within 72 hours. Two of these patients died within 48 hours of onset. Three to 4 per cent of the cases among young children died in a few hours with the Friedericksen-Waterhouse syndrome in spite of intensive treatment. In some of these cases the microörganisms were so numerous that in a blood smear the red blood cells could hardly be seen for the meningococci. The Public Health Service's free communicable disease diagnostic service became swamped; it was impossible for the

diagnosticians to cover the 80 to 100 calls received each day.

At this point, Dr. Eugenio Suarez, the General Director of Public Health, requested and immediately obtained the extraordinary powers that in case of emergency are given to him by the *Sanitary Code*. Since in an epidemic of meningococcus meningitis there are not at the present time effective measures to prevent its spread, our efforts were primarily devoted to supplying prompt and adequate medical care to the patients in order to decrease the case fatality rate. Our campaign, therefore, was planned on this basis and no efforts were spared in an attempt to reach the patients in the shortest time possible. For this purpose we evacuated within 24 hours a 400 bed hospital to receive patients 5 years of age and over. For the children under 5, 100 beds were available in a children's hospital, and 60 beds were held in reserve in other hospitals. The director of the campaign moved his headquarters to the hospital and all the personnel were under his direct command. A 24 hour diagnostic service was available, staffed by 25 physicians, divided into five shifts, who worked 3 hours each day and one night of every five. Each shift included one pediatrician. This diagnostic service was available not only as a consultation service to private practitioners, but was available as well directly to the public.

This personnel was selected from the interns of the wards where the cases during the preceding year had been hospitalized. Having seen several hundred cases, these interns were very familiar with the different manifestations of meningococcus infection. Notices on the front page of all the newspapers instructed the population as to the chief symptoms of the disease, the way in which they could get the physicians' service, and that this service was absolutely free. Each physician had available at all times a car from the Public Health Service in which there was a special bag containing sulfa drugs in tablets and in solution, syringes and needles already sterilized, and cardiovascular drugs to treat the cases in collapse. They were instructed to begin the treatment at the bedside of the patient upon the slightest suspicion of meningitis. A record stating the hour at which the sulfa drug was given as well as the dose was left in the home and brought with the patient when the ambulance was sent for him.

At the admission room in the hospital the patients were carefully checked, and if the diagnosis was not clear they were sent to an observation ward where they were periodically reëxamined and sent either to the wards or to another hospital if a diagnosis other than meningitis was reached. If the physician upon his first visit to a household considered that the case could be kept under observation at his home, he reported to the hospital the hour at which a second visit should be made and his instructions were carried out by the shift that happened to be on duty at that time. For the private practitioners a 24 hour consultant service was available, and in some instances the same patient was seen 3 or 4 times within 24 hours until a final diagnosis was reached. It was expected that a visit would be made within 2 hours of each call, and for this purpose the telephone operator had a book in which the time of the call and the time at which the patient was seen were recorded, as well as the diagnosis which was made. In this way it was easy to control the efficiency of the service. Inquiries were made as to the reasons for delay, and improvements were effected if deficiencies were found. The physicians while attending the calls were in constant communication with the hospital to save time if there happened to be a new call in their neighborhood.

One night a man called the hospital saying that his son had suddenly awakened with vomiting and was complaining of severe headache. The home was seven miles from the hospital but it happened that 5 minutes later one of our physicians telephoned in and he was only 2 blocks from the patient's home. The father was astonished when he saw his call attended less than 10 minutes after he had requested our services. The case proved to be meningitis and the treatment was immediately started, 10 minutes after the known onset of the disease. Obviously this was an unique exception, but the great majority of the calls were made within the 2 hour objective. This practice of working at high speed contributed to reassure the population and to terminate the "epidemic neurosis" which had developed. Although fear was useful at the beginning of the campaign to make the public aware of the existence of the epidemic, it became a heavy burden to the medical personnel since many calls were only due to panic. Some people requested our services for merely a slight headache. The reassurement of the population was shown by the rapid decrease in the ratio of requests for services to the number of actual cases found.

Power to use the police in enforcing his resolutions was given to the director of the campaign, a weapon that can be very useful if wisely used. To show under what conditions we had to work and how compulsion sometimes is necessary to save a life, I like to relate the following experience.

One day, late in the evening, we received a telephone call from the director of an outpatient clinic belonging to one of our social security agencies, saying that a diagnosis of meningitis had been made in a baby girl 6 months old. When the mother was told that her baby was severely sick and had to be sent to a hospital at once, she refused, saying, with the fatalism that characterizes some of the lower segments of our population, that since the baby was going to die, she preferred to have her die at home. Believing that a baby's life should not depend upon the ignorance of her mother, the director of the clinic ordered a policeman to hold the woman until the ambulance came. Unfortunately, a social worker not knowing what had occurred and seeing that the mother was hysterical told the policeman to release the woman and that she would take care of the case. Upon receiving the call we went immediately to the address, in a very poor, slum area, and found nobody home. We came back that night and found from 8 to 10 people in the house, some of them drunk, but no trace of the mother or the baby. We explained to them that we were looking for the baby, trying to save her life, but they stated they did not know where the baby was. After all arguments for obtaining the new address were exhausted, we thought that we were justified in using force, and secured four policemen from the police station. Again, we tried to get the information voluntarily but upon their refusal, we told them that everybody was going to be taken to the police station and stay there as long as necessary to make the baby appear. With this threat and in view of the fact that it was a cold, rainy, winter night, they thought that it was better to give the information than to leave the house. We found the baby at 1 o'clock in the morning, 14 blocks from the original address, in a bed with her parents and 2 brothers, 2 and 4 years old, in a small room where there were 4 other people as well. The baby was immediately carried to the hospital and, fortunately, she recovered.

In the rural areas near Santiago we encouraged all the local physicians to send even suspicious cases to our hospital. Ambulances were available at strategic points and we covered the areas where, due to the low density of the population, there was no medical service readily available. One day we received a call from a rural police station in the Andes 50 miles from the capital, informing us that a man had been found unconscious in the mountains. An ambulance with a physician was sent immediately. The patient was found to be suffering from a fulminating case of the disease, and he received intravenous treatment at the police station, with ultimate recovery.

The reporting of cases by private physicians was poor. This fact was readily shown by our spot map which indicated an extremely high number of deaths in relation to the number of cases in the better residential areas of the city. This high death rate was fallacious since the wealthy people have better medical care, and could only be explained by poor reporting of cases. At our request the reporting improved slightly but still was poor. So, overnight we "froze" the sulfa drugs. The drug stores could not sell a single tablet unless the name, address and diagnosis of the patient were stated by the physician in the prescription. Furthermore, in order to save sulfadiazine for the meningitis cases, this drug could only be sold for the treatment of that disease. In case a physician needed sulfadiazine for the treatment of other conditions he had to ask permission of one of the members of a commission of 4 physicians who were available day and night: two from the Public Health Service, one representative of the medical society, and one from the surgical society. Each morning the drug stores sent a list to the offices of the Public Health Service with the names and addresses of the patients to whom sulfa drugs had been sold in the preceding 24 hours. All these patients were checked by physicians of the Public Health Service within the day, and if the conditions for proper care and isolation were satisfactory they were allowed to stay at home; if not, they had to be hospitalized. Fortunately, always after contacting the attending physician the conditions either were improved or the family accepted our suggestion as to hospitalization.

Besides the prompt and effective medical care, routine measures of control were taken. The beds in army barracks and schools were separated more than 1.4 meters, public gatherings were discouraged, the capacity of the theaters was decreased to a certain percentage of the number of seats according to the facilities for ventilation, and an adequate publicity and education campaign was conducted through radio, newspapers, and leaflets. The patients at the hospital could only be visited under special circumstances determined by the director of the campaign. Twice a day, bulletins stating the condition of the patients were issued at the hospital and at the offices of the Public Health Service downtown.

There were received at the hospital 1,658 patients from July 1 to December 31, 1942. Of these, 1,608 were meningococcus meningitis, 29 tuberculous meningitis, and 21 were suffering from other diseases and transferred to other hospitals as soon as the diagnosis was made. Of the 1,608 meningitis patients 117 died, giving a case fatality rate of 7.27 per cent which is far below the average case fatality rate for the patients who were treated elsewhere (18.9 per cent). This low case fatality rate may be due in part to the fact the case fatality rate in children under 5 years of age is particularly high and such children were treated in other hospitals, but no doubt partially to the early treatment obtained through our service, in comparison with those treated at home.

Some evidence of the effects of our campaign are possibly indicated in a comparison of case fatality rates before the campaign started and after its inception. During the second half of 1941 the case fatality rate was 23.1 per cent. During the first half of 1942 it was 22.3 per cent, while during the second half of the year when the campaign was in effect it was 14.5 per cent. This drop in the case fatality rate is statistically significant. The figures from which they were calculated include all age groups, and the treatment was the same in the 3 periods. There are

other factors, of course, which might have played a rôle in the decrease in the case fatality rate in the third period, such as better diagnosis and more complete reporting, but it is felt that it is also a reflection of the medical care program which was instituted.

In order to make a study of the case fatality rate according to the place of treatment, 1,872 records for the 3,602 patients or 51.66 per cent, were taken at random. This sample, as was expected, proved to be representative, as determined by a comparison of the age and sex distribution in the two groups. Of the 1,872 patients, 1,736 were treated in a hospital and 136 at home. The case fatality rate among the former was 12.5 per cent while among the latter it was 31.6 per cent, showing again the influence of hospitalization upon the prognosis.

An attempt was made to study the influence of the time elapsed between onset and hospitalization, and according to the duration of the disease. Sixteen hundred and sixty-seven cases were studied from this standpoint; 65.7 per cent were hospitalized within 48 hours of the onset of the disease. Of these, 45.1 per cent left the hospital before the 12th day, discharge being on the basis of clinical recovery. Among those hospitalized after 48 hours from onset a somewhat smaller percentage was discharged within 12 days, 40.4 per cent. This difference, however, is statistically significant. The case fatality rate among the two groups was practically the same, probably because the fulminating, rapidly fatal cases fell into the group receiving early care, thus counteracting the low case fatality rate established by the other cases in this group.

We will never know the actual extent of infection which occurred. All gradations were experienced from apparently completely passive carriers to the typical, textbook cases of meningococcus meningitis, which, of course, represent only a fraction of the total number of clinical conditions due to the meningococcus infection. Sore throats were not infrequently associated with almost pure cultures of meningococci. Arthritis with effusion in the joint was found to be due to the meningococcus, and many bizarre clinical conditions were encountered which I shall not take time to discuss in this paper.

In conclusion let me state that this should be considered a preliminary report since the outbreak has continued in 1943 and data are still being collected. However, the incidence this year apparently will be lower than in 1942. I have merely tried to inform you of some of our experiences in this overwhelming epidemic of meningococcus meningitis. I hope you will never have such an epidemic, but if by misfortune you do, I hope our experience may be of some help to you.

Post-War Implications of Fluorine and Dental Health*

The Use of Topically Applied Fluorine

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PRESENT knowledge and trends of evidence on the relationship of fluorine and dental health indicate that the incidence of dental caries can be reduced by either of two methods of fluorine therapy. These methods are: (1) the addition of 1 part per million of fluorine to municipal water supplies; and (2) the topical application of fluoride solution to the teeth. It is the purpose of this paper to present experience with and to discuss the relative usefulness of the second method of fluorine therapy.

The first published reports on the use of topical application of fluoride solution to the teeth of humans were made in 1942 by two independent investigators. Bibby [1] reported on the application of 0.1 per cent sodium fluoride solution to the permanent teeth of 89 children aged 10 to 13 years, and Cheyne [2] reported on the application of 0.05 per cent potassium fluoride solution to the deciduous teeth of 27 children aged 4.5 to 6 years. Both of these investigators concluded that the treatment effected a 50 per cent reduction in the incidence of dental caries. In a subsequent report on the second year of observations on the caries experience in his study group, Bibby [3] concluded that the effectiveness of the treatment had decreased slightly.

The most recent report on experience with topically applied fluoride was made by Knutson and Armstrong,[4] who obtained a 40 per cent reduction in the yearly incidence of dental caries by using a 2 per cent solution of sodium fluoride. A condensed analysis of the major findings of this study of 289 treated children and 326 negative control children, aged 7 to 15 years, will be given below.

During an 8 week treatment period the 289 children in the treated group received from 7 to 15 applications of the fluoride solution to the teeth in the upper left and the lower left quadrants of the mouth. The teeth in the right quadrants were not treated and were utilized as direct controls. The incidence of new caries in the treated and in the untreated permanent teeth during the first year after treatment are compared by mouth quadrants in Table 1. Because of the bilaterally equal occurrence of dental caries in population groups, it is expected that the

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TABLE 1

The Incidence of Caries in Permanent Teeth Previously Free of Caries; Comparison of Fluoride-treated and Untreated Quadrants in Each Jaw of 289 Treated Children

Item	Upper Jaw: Persons	Lower Jaw: Persons
Lower incidence in treated quadrant	63	48
Higher incidence in treated quadrant	26	30
Incidence equal (one or more) in treated and untreated quadrants	15	12
No new carious teeth in either treated or untreated quadrants	185	199
Total number of children	289	289

number of instances in which individuals have more caries in the left than in the right quadrants of the jaw will equal the number of instances in which the opposite result is obtained. It will be noted from the data in Table 1 that for the upper quadrants, 26 children had more, whereas 63, or 2.4 times as many children, had fewer new carious teeth in the treated than in the untreated quadrants. For the lower jaw, 30 children had more, and 48, or 1.6 times as many children, had fewer new carious teeth in the treated than in the untreated quadrants.

The number of permanent teeth that were non-carious at the time of treatment and the number of these that became carious during the following year are presented for the treated group of children in Table 2. In addition, the numbers of new carious tooth surfaces which occurred in the non-carious and in the previously carious teeth are also given. According to the data in this table, 54 non-carious teeth in the upper left and 100 in the upper right quadrant were attacked by caries; a difference of 46.0 per cent less new caries in the treated than in the untreated upper teeth. In the lower jaw, 46 new carious teeth occurred in the left and 66 in the right quadrants; a difference of 30.3 per cent less caries in the treated than in the untreated lower teeth. These findings, together with those presented in Table 1, indicate that the treatment was more effective for the upper than for the lower teeth.

As would be expected, the number of tooth surfaces attacked by caries is highly correlated with the number of teeth attacked. However, it is important to note (Table 2) that, although the numbers of tooth surfaces which became carious in previously carious teeth are lower in the treated than in the untreated teeth—49 in the treated and 57 in the untreated upper teeth, and 64 in the treated and 72 in the untreated lower teeth—the differences are relatively insignificant. Ap-

TABLE 2

Dental Caries Experience during the Year Ending in May, 1943, for the Permanent Teeth in the Fluoride-treated and Untreated Quadrants of the Jaws of 289 Minnesota Children

Quadrant	Number of Non-carious Teeth, April, 1942	New DF * Teeth, May, 1943	DF Surfaces in New DF Teeth	New DF Surfaces in Previously Carious Teeth	Total New DF Surfaces
		Upper			
Treated (left)	1,010	54	63	49	112
Untreated (right)	1,026	100	109	57	166
		Lower			
Treated (left)	1,236	46	56	64	120
Untreated (right)	1,246	66	75	72	147

DF = Carious (decayed or filled)

parently the treatment is of questionable value in preventing caries attack on the non-carious surfaces of teeth previously attacked.

The particular study under discussion was not designed to determine the minimum number of effective treatments. However, no marked difference in the amount of caries reduction was observed when the findings for the children who received 7 to 8 treatments were compared with those for the children who received 12 to 15 treatments.

Do fluoride treatments of half the teeth in the mouth affect the environment and caries experience of the untreated teeth in the other half of the mouth? In order to answer this question the caries experience of the teeth in a negative control group consisting of 326 children was studied concurrently with that in the treated group. Since the past caries experiences of the treated and of the control groups of children were quite similar, it seemed reasonable to expect that the incidence of dental caries during the study year would normally be approximately the same for both groups. Comparison of the caries experience in these two groups of children on the basis of number and percentage of teeth attacked by caries is presented in Table 3. The percentage caries attack rate (standardized for age) is 6.8 for the teeth in the untreated or right quadrants of the mouths of the treated group and 7.0 for the teeth in either the right or the left quadrants of the mouths of the control group of children. Because of the similarity in these rates it was concluded that the effect of the fluoride treatment is exclusively local during the first year following treatment.

A summary of the major findings of this most recently reported study on the topical application of fluoride to the teeth is as follows:

1. The treatment described effected a 40 per cent reduction in the incidence of dental caries during the first year following treatment. The treatment was appreciably more effective in preventing caries in the upper than in the lower teeth.
2. The treatment was of questionable value in inhibiting caries extension on the non-carious surfaces of previously attacked teeth. There was no evidence that the treatment effected an arrest of active caries.
3. During the first year after treatment, the caries inhibiting effect was confined to those teeth to which the fluoride solution was topically applied.

Before proceeding to a discussion of the usefulness of the topical application of fluoride to the teeth, it must be admitted that at present the total experience with this method for obtaining reduction in the incidence of dental caries is very meager and merely sufficient to encourage further study. However, the results of these preliminary tests have given rise to the conviction that the effectiveness of this

TABLE 3

The Number and Percentage of Non-carious Permanent Teeth Attacked by Caries during the Year Ending May, 1943, by Left and Right Mouth Quadrants; 289 Fluoride-treated and 326 Control Children, Aged 7 to 15 Years

Mouth Quadrants	Number of Non-carious Teeth, April, 1942	Number of Carious Teeth, May, 1943	Per cent Carious (Crude Rate)	Per cent Carious (Standardized Rate *)
		Treated Group		
Left (treated)	2,245	100	4.4	4.5
Right (untreated)	2,272	166	7.3	6.8
		Control Group		
Left	2,828	201	7.1	7.0
Right	2,829	220	7.8	7.0

* Numerical average of the age-specific rates

type of therapy can be improved markedly. Therefore, in order to limit the present consideration of the relative usefulness of topically applied fluorides in post-war dental health programs, this discussion will be based on the pessimistic assumption that the current indications of the prophylactic effect of the two methods of fluoride therapy will be established at the current level of apparent effectiveness and that other more efficient methods will not soon be available for use.

It has been demonstrated by Dean and his coworkers [5] that approximately 1 p.p.m. of fluoride in communal water supplies is associated with a 50 to 65 per cent reduction in the prevalence of dental caries. For the purposes of this discussion, this level of prophylactic effectiveness is accepted as the expected result of the purposeful adjustment of municipal water supplies to a fluoride concentration of 1 p.p.m. Under the foregoing assumptions it is obvious that fluoride added to water supplies is more effective in preventing dental caries than fluoride applied topically to the teeth. Furthermore, a program based on the addition of fluoride to municipal water supplies is far less costly and far less difficult to administer than one based on individual therapy. Nevertheless in considering a program for an over-all reduction of dental caries in this country, the topical application of fluoride to the teeth cannot, for several major reasons, be dismissed as only of academic interest.

First, in order to obtain the full caries-inhibiting effect of fluoride bearing waters, it is necessary that the individual depend on such supplies for his ordinary purposes of water consumption during the first 8 years of life, or during the period when the teeth (excepting third molars) are being calcified. Thus this method is of direct value to future populations only. On the other hand, the topical application of fluoride affords a preventive measure for use on the teeth of present populations.

Second, if all municipal water supplies in this country were adjusted to contain 1 p.p.m. of fluoride, approximately one-third of the population would not be covered by this form of fluoride therapy. Among that third of the population dependent on private wells or other supplies for their source of water,[6] the topical application of fluoride is a useful substitute method.

Third, since neither method of fluoride therapy is a complete dental caries prophylaxis, a periodic dental examination for the early detection and treatment of those teeth which become carious will continue to be an important health service. The topical application of fluoride to the teeth could be routinely administered with each periodic dental examination. This possibility, together with the desirability of treating teeth with fluoride soon after eruption, reduces the importance of the problem of multiple treatments. Since, for example, the eruption of the permanent teeth occurs largely during the age span 6 to 13 years, the treatment of each annual crop of newly erupted teeth would afford an opportunity to submit previously erupted teeth to renewed treatment. Furthermore, the ability to secure a concrete preventive service may constitute an important incentive for obtaining periodic dental examination and the early correction of carious and other dental defects.

There is at least a theoretical possibility that a few individuals will develop mottled enamel from fluorine-treated waters, whereas this result is not possible through the use of topically applied fluorine. However, this comparison will not be used here to discredit the former method of therapy and favor the latter. There is no evidence that 1 p.p.m. of fluoride in the

communal water supplies produces dental fluorosis of esthetic importance to the individual or that it produces deleterious effects of any health significance; it is known that higher concentrations produce both. However, the danger of overdosage is common to many of the forms of therapy in extensive use today. Therefore, an indictment of the fluorine treatment of waters on the basis of our present knowledge of the dangers of overdosage does not seem reasonable.

From the foregoing considerations, the general conclusion is that the topical application of fluoride to the teeth is very likely to afford a method of practical usefulness for reducing the incidence of dental caries in the populations of the post-war period.

SUMMARY

A review of the reported experience on the dental caries-inhibiting effect of topical applications of fluoride solution to the teeth has been presented. Present indications are that the incidence of dental caries can be reduced approximately 40 per cent by this method of fluoride therapy.

Although it is highly probable that a 50 to 65 per cent reduction in dental caries can be accomplished by the simple addition of 1 p.p.m. of fluoride to domestic water supplies, the topical application of fluoride to the teeth affords a useful adjunct or substitute method for obtaining a somewhat smaller reduction in the incidence of dental caries. There is a particular usefulness of the topical method of therapy to present populations and to that third of the population dependent on private wells for their water supplies.

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Post-War Implications of Fluorine and Dental Health*

From the Viewpoint of Public Health Dentistry

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DENTAL health programs have been adjusted to meet the needs of wartime. When peace comes, public health dentistry should direct its energies toward two goals: (1) a wider distribution of dental care in proportion to the dental disease problem, and (2) the improvement of technics in dental disease control.

Generally speaking, programs for the promotion of dental health have thus far been based on health education and on early detection and treatment of dental defects. Although all dental diseases are of special interest to public health dentistry, dental caries has been given the greatest amount of attention by virtue of the fact that the majority of dental health programs have been directed primarily toward children and because dental caries is chiefly responsible for the loss of teeth in these younger age groups.[1] There are no immediate prospects that health education and corrective programs alone will solve the dental caries problem. If we were to attempt to do so, children would need to be given approximately six times the amount of dental service they now receive for the protection of permanent teeth, as suggested in the report of the Hagerstown studies,[2] in addition to a considerable increase in the treatment of deciduous teeth. To institute such a program would require not only a greater number and a more equal distribution of dentists among the population but also health education and administrative facilities of considerable magnitude.

Public health dentistry has not heretofore been armed with an effective procedure for preventing dental caries; nevertheless, a number of dental health programs have been responsible for a material reduction in the number of untreated carious teeth and in the number of lost permanent teeth.[3, 4, 5] It is important to point out, however, that these accomplishments were effected in relatively small populations; to obtain similar results for the majority of persons in any county or state would require a vast increase in public health and dental professional facilities. Present indications give us reason to believe that dental treatment service will continue to be an essential part of any caries control program. The amount of dental treatment service needed to control caries effectively in the future will depend on how successful we are in protecting teeth against caries. There is no satisfactory evidence to show that our past efforts in preventive dentistry have materially reduced the incidence or preva-

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lence of caries; the same may be said for our attempts to protect teeth against caries by the use of the tooth brush and an adequate diet. Epidemiologic, chemical, and bacteriological studies indicate that the inhibiting effect of fluorine may provide us with the most effective caries control procedure thus far discovered.[6, 7] It has been suggested that the most practical application of this new knowledge would be to add non-toxic doses of fluoride to a fluoride-free public water supply.[8] It is interesting to speculate on how much the administration of a caries control program would be aided by applying this procedure in an area where fluorine is not now present in the water supplies. Laclede County, Mo., might well be taken as an example because it represents conditions which are common to many other counties in the state.

Laclede County did not have an organized dental health program prior to 1942. For a number of years this county had a peacetime ratio of 3,119 persons per dentist. The dental examination of 2,807 white children within the ages of 6–14 showed an observable caries experience rate (df rate) * of 334 decayed and filled deciduous teeth per 100 children and a dental caries experience rate in permanent teeth of 272 DMF teeth per 100 children; 7.2 per cent of the children had no observable caries experience in deciduous teeth, and 18.6 per cent of the children had no dental caries experience in permanent teeth. Of the deciduous teeth with a history of decay 65 per cent required fillings, 23 per cent were indicated for extraction, and 12 per cent were filled. Of the permanent teeth with a history of decay 69 per cent required fillings, 7 per cent were lost, and 24 per cent were filled.

In attempting to develop a dental health program for this group of children, dental treatment services would need to be given major emphasis in order that the accumulation and the yearly increment of caries lesions might be corrected. Computations were made to determine how many working hours would be required for the dentists in Laclede County to correct the dental defects resulting from carious lesions, assuming, of course, that each child would submit to the required treatment. Consideration was only given to fillings, extractions, and special services such as pulpotomies and the construction of space maintainers to correct only those conditions which were the direct result of dental caries in deciduous and permanent teeth.

It was estimated that it would require 8,344 hours of dental treatment to correct the defects resulting from carious lesions in deciduous and permanent teeth. It was also estimated that the total working time of the 6 dentists in Laclede County for one year would amount to approximately 10,800 hours. In other words, it would require four-fifths of the working time of the 6 dentists in the county to take care of the dental needs of children the first year. These estimates typify the extent of our problem and clearly indicate that public health dentistry is badly in need of a weapon for effecting mass protection against dental caries. The use of non-toxic amounts of fluoride might provide at least a partial answer to our problem. For instance, from a purely theoretical standpoint the question might reasonably be asked: To what extent would the caries problem be altered if all of the Laclede County

* The symbol "def" represents a measurement of observable dental caries experience in deciduous teeth. The def rate is obtained by: the number of decayed deciduous teeth requiring fillings + the number of decayed deciduous teeth indicated for extraction + filled deciduous teeth + the number of children examined × 100 = observable dental caries experience rate per 100 children.

Lower case letters are used for the symbol "def" in contrast to the upper case letters DMF which represents dental caries experience in permanent teeth.

children had received the beneficial effects of fluoride?

Arnold compared the caries experience rates of Aurora, Ill., children, who used water containing 1.2 p.p.m. of fluoride, with the caries experience rates of the children living in Evanston, Oak Park, and Waukegan, and who used fluoride-free water. The comparison revealed that about six times as many Aurora children showed no dental caries experience and that the Aurora children had about a 60 per cent lower dental caries experience rate.[9]

By making a similar comparison with Laclede County children, and assuming that these children had used a domestic water containing approximately 1 p.p.m. of fluoride since birth, the Laclede County children might be expected to show a 60 per cent lower caries experience rate and six times as many children may have had no dental caries experience. If such conditions did exist, it is then estimated that it would only require approximately one-half of the working time of the 6 dentists in the county to correct the caries produced defects in deciduous and permanent teeth the first year. The dental caries problem would thus be brought within the range of a dental care program. In the case of Laclede County, for instance, 2 additional dentists would change the dentist-patient ratio so that 8 dentists would only be required to devote one-third of the working time to the 6–14 year age group instead of the actual circumstance whereby 6 dentists need to set aside four-fifths of their working time for this group of children.

There are, however, other factors to be considered in connection with the utilization of fluoride as a caries control procedure. It has been suggested that the addition of small amounts of fluoride, not to exceed 1 p.p.m., to fluoride-free public water supplies may be a practical and an efficient method of markedly inhibiting dental caries in large group populations.[10] Although the manipulation of public water supplies is a comparatively simple and proven method for protecting the public against disease, this procedure would only benefit persons living in cities or communities which have a public water supply. For example, in Laclede County there is at present one public water supply which is used by only 18.7 per cent of the people in the county. Thus, some means must be found to employ fluoride for the benefit of all the people.

Public health dentistry is charged with the responsibility of improving the dental health of the public by employing the most effective and efficient procedures possible. If it is shown conclusively that the addition of fluoride to water or food, or by the topical application of fluorine to teeth, produces a measure of protection against dental caries, this element should be used to the best possible advantage. On the other hand, public health dentistry is also obligated to protect the health of the people it serves and should not, therefore, use any toxic agent without adequate knowledge of its action and limitations. Reports of studies on this subject,[11, 12] indicate that if fluoride is ingested in a concentration of less than 1 p.p.m. of water, no harmful effects have thus far been discovered.

Ample evidence apparently has been presented by competent investigators that a public water supply containing fluoride will inhibit caries.[13] Much work still remains to be done to determine the proper application of this knowledge. Public health dentistry will have an important rôle in the development of new technics in public health practice if fluorine is used in dental caries control.

SUMMARY

Post-war objectives of public health dentistry should include a wider distribution of dental care and improved

technics in dental disease control.

Dental caries, one of the unsolved health problems, will not apparently be controlled adequately by health education and dental treatment service.

In an attempt to determine how much a caries control program would be aided by adding non-toxic doses of fluoride to domestic water supplies, rough estimates were made of the dentists' working hours which would be required to correct the dental defects caused by caries in children 6–14 years of age. Comparisons were made of the actual dental treatment requirements with the theoretical corrective needs if the expected benefit of fluoride were obtained.

Consideration was given to the importance of knowing the toxic effects of fluorine before this element is introduced into domestic water supplies.

The rôle of public health dentistry in utilizing fluorine in the caries control program was discussed.

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Digest of the Discussion following the Fluorine Papers

Leo Remes, D.D.S., L.D.S., R.C.S. (England), New York, N. Y.:

"In advocating the use of fluorine the epidemiologist, always seeking to apply measures which give promise of alleviating a public health hazard, may be within his province. However, as scientific men in the presence of as yet meager evidence, we should hesitate to advocate the universal use of this admittedly dangerous agent without further knowledge of its mode of action. We need to know something more about the rationale of fluorine's action in preventing caries; an acceptable hypothesis respecting the anti-enxymotic action of fluorine is still wanting. Whether fluorine acts by bathing the tooth in a fluoride bearing saliva, or by arriving at the enamel rods via the putative lymph supply of the enamel are questions which not only may determine our therapeutics but they remain as valuable safeguards against the acceptance of potentially dangerous measures on empirical grounds. Without such safeguards much harm may ensue, and a great disservice be done to dentistry."

H. T. Dean, D.D.S., Bethesda, Md.:

"Universal fluorination of domestic water supplies was not advocated in my paper. In fact it was particularly stressed that two phases of this problem still await investigation:

1. General epidemiological studies of populations exposed for a long number of years to relatively high fluoride waters in order to

learn the effects, if any, of such fluoride intake on the community's general health.

2. An experimental test embracing human populations to learn whether the addition of 1 p.p.m. of fluoride (F) to a fluoride-free water will actually reduce the amount of dental caries in the community.

"Until these two crucial fields are adequately studied any general recommendation with respect to low fluorination of domestic water supplies would be premature and unwarranted.

"It is not essential that the mode of action of the fluorine be known before setting up the test studies. Preventive medicine utilized observed natural phenomenon as a basis for far reaching control measures years before the laboratory provided the 'scientific explanation' of the phenomenon. The conversion of Jenner's observation of the protective influence of vaccinia virus in smallpox prevention rested on the purest of empirical grounds for a century. For generations scurvy and malaria were effectively controlled before either their etiology or the mode of action of the prophylactic agent was known."

John Oppie McCall, D.D.S., New York, N. Y.:

"I would like to ask Dr. Gruebbel if there has been any attempt to intensify or prolong the action of sodium fluoride when applied to the tooth surface. It is common practice, when silver nitrate is applied, to reduce it with formalin or eugenol. I should like to ask if there is any way of rendering the fluoride less soluble, after its application to the tooth, by using lime water or other compound."

Dr. Gruebbel replied that he had made no such experiment.

James M. Dunning, D.D.S., Lieut. (D.C.) U.S.N.R., New York, N. Y.:

"As evidence that preventive methods centered on oral hygiene and early treatment have produced positive results, may I say that recent studies of the Metropolitan Life Insurance Co. home office force show a decrease over fifteen years of approximately 1½ missing teeth per person in the age groups between 30 and 50. This decrease seems chiefly due to the preventive service started by Hyatt."

Allen O. Gruebbel, D.D.S., M.P.H., Jefferson City, Mo.:

"Dr. Dunning's remarks are not in conflict with the statements in my paper. It is admitted that dental programs have accomplished good results for a number of relatively small population groups, but there is no evidence that such has been the case for the public in general. The paper contained the following statements: 'There are no immediate prospects that health education and corrective programs alone will solve the dental caries problem. . . . Public health dentistry has not heretofore been armed with an effective procedure for preventing dental caries; nevertheless, a number of dental health programs have been responsible for a material reduction in the number of untreated carious teeth and in the number of lost permanent teeth. It is important to point out, however, that these accomplishments were effected in relatively small populations; to obtain similar results for the majority of persons in any county or state would require a vast increase in public health and dental professional facilities.'"

James M. Dunning, D.D.S., Lieut. (D.C.) U.S.N.R., New York, N. Y.:

"Were observations made of the gingivae and mucous membranes of your cases after treatment, and if so, were any evidences of damage, toxic or otherwise, found?

"(I missed the first part of Dr. Knutson's paper, but was told he did not cover this point in his main text. If he

did not, his answer (no damage) seems an interesting addition to his story.)"

John W. Knutson, D.D.S., Dr.P.H., Minneapolis, Minn.:

"The mouths of most of the children in our study group were observed twice a week during the eight week treatment period. There were no indications that the fluoride solution produced gingivitis or other signs of toxic damage to the soft tissue of the mouth, or to the gingivae surrounding the treated teeth."

Harry S. Thomson, D.M.D., Toronto, Ont.:

"I am very happy to be present at this meeting and to hear these reports. I must, however, express my feeling of alarm and grave concern over the possibility of too early publicity being given to findings based on, as yet, limited investigations, but which, from a news standpoint might be considered spectacular and sensational. I do hope that very creditable research such as this can be held down to purely scientific discussion until investigation by other workers reveals the full physiological action of the fluorides, from both a beneficial and an opposite effect, on the entire organism.

"We can all visualize that some energetic young reporter might take advantage of this preliminary scientific report, and the remarks made in a joking way about incorporating fluorides in ice cream and chewing gum, and make it a newspaper story that would put *his* name on the front page of the city papers, but which would be a source of great annoyance to the research workers and dental health officials.

"I make a strong plea that this matter be considered solely from a scientific point of view by the group here assembled, until further work is accomplished and reports are issued."

J. A. Salzmann, D.D.S., New York, N. Y.:

"It is gratifying to know that public health workers are following epidemiologic procedures in their attempts to control dental decay. This approach should be distinguished from efforts to ascertain causation which many research workers are pursuing, and from preventive dentistry which is nothing more than treatment of manifest dental decay. Fluorine holds forth great promise. However, we should be circumspect in our statements to the lay press, lest we arouse premature enthusiasms and popular fads and so endanger the good that may eventually come from this work."

The first two papers in this Symposium, by H. Trendley Dean, D.D.S., and Raymond J. Faust, C.E., appeared in the February JOURNAL.

Correlation of *in vitro* Sulfonamide Resistance of the Gonococcus with Results of Sulfonamide Therapy*†

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PREVIOUS studies have demonstrated that *in vitro* the gonococcus acquires resistance to gradually increased concentrations of sulfanilamide, sulfapyridine, sulfathiazole, and sulfadiazine.[1–4] It has been shown, furthermore, that induced resistance of an organism to one sulfonamide compound usually increases resistance to other derivatives of sulfanilamide.[3, 5] These observations, together with an apparent decrease in the therapeutic efficacy of sulfonamides in gonorrhea, suggested the investigation of a possible correlation between the laboratory and clinical findings. Information as to the prevalence of sulfonamide resistant strains of the gonococcus in a community following the widespread use of sulfonamides would in addition provide data of epidemiologic significance. Cohn and Seijo[6] have recently reported a direct relationship between the therapeutic efficacy of sulfathiazole in patients with gonococcal infection in New York City, and the susceptibility of the patient's strain of gonococcus to the drug *in vitro*.

The present report records the results of treatment with sulfathiazole on 105 patients with gonococcal infection and the *in vitro* behavior to sulfanilamide and sulfathiazole of the strains of the gonococcus isolated from those patients. This study was carried out at the Glynn County Board of Health, Brunswick, Ga.

MATERIALS AND METHODS

Patients with symptoms of uncomplicated urethritis of cervicitis reporting at the venereal disease clinic were examined for evidence of gonococcal infection. The film and cultural methods were used to verify the diagnosis of the disease. Those from whom the gonococcus was isolated were treated with a single course of therapy consisting of 20 gm. of sulfathiazole administered in one of the two following manners: 3 gm. daily for 6 days and 2 gm. on the 7th day or 4 gm. daily for 5 days. In a few instances sulfapyrazine was sub-

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-second Annual Meeting in New York, N. Y., October 14, 1943.

† This study was carried out in coöperation with the Division of Venereal Diseases, U. S. Public Health Service, Washington, D. C.

stituted for sulfathiazole. The patients returned to the clinic for examination once a week for at least 3 weeks, and at each visit films and cultures were again taken. A series of three negative bacteriologic examinations together with the absence of clinical evidence of disease comprised the criteria of cure. Thus, patients responding to one course of therapy were considered "cured," and those requiring additional treatment were designated "failures." The 105 patients included in this study were classified according to race and sex as follows: Negro, 79; white, 26. The Negroes comprised 54 males and 25 females; the white patients, 13 males and 13 females. Included in this group were only those patients with no history of previous treatment with sulfonamide compounds.

The strain of gonococcus isolated from each patient before treatment was tested *in vitro* for growth in blood-broth media containing sulfanilamide and sulfathiazole. As a rule, the tests were carried out as soon as possible after isolation, the strains examined for the most part being between the 5th and 10th generations. In addition to the 105 strains of the gonococcus recovered from this group of patients, similar tests were made on 109 strains isolated in this same community. The observation period of the study extended from May 1, 1942, to August 1, 1943.

The medium was prepared in the following manner. Sulfanilamide to yield final concentrations of 5, 10, 20, and 40 mg. per cent was added to Douglas's broth containing 0.05 per cent each of sodium phosphate and sodium nitrate. After sterilization in the autoclave at 121° C. for 10 minutes, 5 ml. of defibrinated lapine blood were added to each 100 ml. of the medium. The sulfathiazole broth was prepared in a similar manner except that concentrations of 1, 2, 5, and 10 mg. per cent of the drug were employed. Five ml. of medium in test tubes were inoculated with 0.1 ml. of a 24 hour Douglas's broth culture of the strain to be tested. A tube of blood broth without drug was also inoculated to serve as a control. After 48 hours of incubation at 37° C. subcultures were made to "chocolate" agar plates which were similarly incubated, and the presence or absence of growth was recorded. When growth occurred in any tube containing drug, the strain was designated "resistant." If no growth was detected, the strain was considered "nonresistant." The minimal concentrations of 5 mg. per cent and 1 mg. per cent of sulfanilamide and sulfathiazole, respectively, were selected because they were significantly higher than the concentrations which were bactericidal for strains of the gonococcus isolated from patients readily cured with a single course of sulfonamide therapy.

RESULTS

Of the 105 selected patients with gonococcal infection from whom *Neisseria gonorrhoeae* was isolated prior to sulfonamide therapy, 88, or 84 per cent, were "cured" with one course of 20 gm. of either sulfathiazole or sulfapyrazine. The remaining 17, or 16 per cent, failed to be cured with the same amount of drug.

Seventy-seven strains of the gonococcus, 87.5 per cent, isolated from the 88 patients designated as "cured" failed to grow *in vitro* in any of the concentrations, 5, 10, 20, and 40 mg. per cent sulfanilamide or in concentrations of 1, 2, 5, and 10 mg. per cent sulfathiazole. The remaining 11 strains, 12.5 per cent, on the other hand, resisted the action of one or both drugs *in vitro*.

Thirteen strains of the gonococcus, 76.5 per cent, recovered from 17 patients that failed to be cured likewise remained viable when exposed to the

TABLE 1

Correlation of Effect of Sulfonamides on Neisseria gonorrhoeae in Vitro with Sulfonamide Therapy in 105 Patients

	Resistance to Sulfonamides of Strains of Gonococcus Isolated before Treatment		Clinical Results with Sulfonamide Therapy			
			Cured *		Uncured	
Strain	No. of Strains	Per cent	No. of Patients	Per cent	No. of Patients	Per cent
" Nonresistant "	81	77	77	95	4	5
" Resistant "	24	23	11	46	13	54
Total	105	100	88	84	17	16

* Criteria of cure consisted of three negative bacteriologic examinations at weekly intervals together with the absence of clinical evidence of gonorrhea.

above concentrations of sulfanilamide and sulfathiazole *in vitro*, while 4 strains, 23.5 per cent, did not survive the action of the drugs.

A correlation between the curative effect of the drugs *in vivo* and the resistance of the specific organism *in vitro* showed that of 81 patients infected with " nonresistant " strains, 77, 95 per cent, were " cured," but that of 24 patients infected with " resistant " strains, only 11, 46 per cent, were " cured " with an equivalent amount of the compound (Table 1).

Of a total of 214 strains of the gonococcus isolated prior to treatment at Brunswick, Ga., during a 15 month period from May 1, 1942, to August 1, 1943, and tested for sulfonamide resistance, 74, or 34.6 per cent, were " resistant " to sulfanilamide and sulfathiazole *in vitro*. Of greater significance, however, is the finding that only 15.2 per cent of these strains tested during the first 6 months of the study were " resistant," whereas observations made during the last 3 months showed that 59.3 per cent of all strains examined were " resistant " (Table 2).

TABLE 2

Trend of Prevalence of in Vitro Sulfonamide Resistance of the Gonococcus in Brunswick, Ga.

Time Intervals	Cultures Tested	Cultures " Nonresistant " to Sulfonamides in Vitro	Cultures " Resistant " to Sulfonamides in Vitro	" Resistant " Cultures
	No.	No.	No.	Per cent
May, 1942–October, 1942	46	39	7	15.2
November, 1942–January, 1943	45	33	12	26.7
February, 1943–April, 1943	69	46	23	33.3
May, 1943–July, 1943	54	22	32	59.3
Total	214	140	74	34.6

DISCUSSION

Cohn and Seijo [6] working with 107 strains of the gonococcus isolated from 101 patients in New York City have reported that 100 per cent of the patients with " nonresistant " strains were cured, but only 18 per cent of the patients with " resistant " strains recovered. In our study, 95 per cent of the patients with " nonresistant " strains responded favorably to sulfonamide therapy as well as 46 per cent of the patients with " resistant " strains. Thus in the group reported by Cohn and Seijo, only 3 of 17 patients with " resistant " strains of the gonococcus were cured, whereas in our group, 11 of 24 patients with " resistant " strains recovered. A valid comparison of the results obtained

in the two studies cannot be made because each patient of Cohn and Seijo received during the first course of therapy only a total of 14 gm. of drug. Our patients, on the other hand, were given a total of 20 gm. each.

The investigation of the resistance *in vitro* of recently isolated strains of the gonococcus to concentrations of sulfonamide compounds comparable to those obtained in the blood of patients after sulfonamide therapy has provided information of value in shedding light on the future course of sulfonamide therapy in gonorrhea. Evidence has been accumulated to indicate that the extensive use of sulfonamide compounds, chiefly sulfathiazole, for the treatment of gonococcal infection within a period of 15 months has markedly increased the prevalence of "resistant" strains in the community in which the study was carried out. This finding may possibly be attributed to the elimination of a high percentage of the "nonresistant" strains by chemotherapy, as well as to the development of "resistant" strains from exposure to the drugs *in vivo*. Inasmuch as the gonococcus acquires resistance to sulfonamides *in vitro*, undoubtedly the organism becomes resistant to the drugs *in vivo*.

The marked increase in the number of "resistant" strains isolated from untreated patients at the venereal disease clinic is striking. It is known that during the period of observation numerous patients in the community obtained sulfathiazole from local pharmacists presumably for the treatment of gonococcal infection. Therefore, self-treatment may have cured many patients infected with "nonresistant" strains of the gonococcus. Thus a proportion of patients attending the clinic may have comprised those who failed to cure themselves. It must be pointed out, however, that every effort was made to exclude previously treated patients from the study in order to eliminate strains of the gonococcus known to have been exposed to sulfonamides.

Routine tests for the sulfonamide resistance of a strain of gonococcus *in vitro* are as yet impractical because of the time and expense involved. The present study points out, however, one of the difficulties encountered in carrying out with sulfonamide therapy an intensive program for the community control of gonorrhea.

It is interesting to speculate on whether "resistant" strains of the gonococcus were distributed in man previous to the era of sulfonamide therapy, or whether strains of the organism have acquired resistance as a result of contact with the drug. Further investigations including studies of strains isolated prior to the "sulfonamide era" may answer this question.

SUMMARY

The *in vitro* response to sulfathiazole and sulfanilamide of 105 strains of *Neisseria gonorrhoeae* has been correlated with the clinical responses of the patients from whom the organisms were isolated.

Of the group of patients from whom "nonresistant" strains were isolated, 95 per cent were "cured" in 5 days with 20 gm. of sulfathiazole. On the other hand, only 46 per cent of the group with "resistant" strains responded to an equivalent amount of sulfonamide therapy.

An increase in the prevalence of sulfonamide-resistant strains of *Neisseria gonorrhoeae* from 15 to 59 per cent in 15 months was observed in Glynn County, Ga., from May, 1942, to August, 1943, following the extensive use of sulfonamide drugs as a part of a special program for the control of gonorrhea.

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NOTE: Sulfapyrazine was supplied by Mead Johnson and Company, Evansville, Ind.

Health Workers Now Subject to W.M.C. Employment Stabilization Program

The War Manpower Commission, Washington, has announced that physicians, dentists, veterinarians, sanitary engineers, and nurses who are salaried employees in essential or locally needed activities are hereafter subject to the same provisions of any employment stabilization program as applies to other workers in such activities. Such professional employees may not change their jobs without securing statements of availability from the U. S. Employment Service or being referred to new jobs by this Service. It is understood that the U.S.E.S. will make referrals of such employees only after consulting the state chairman of the Procurement and Assignment Service. The W.M.C. state directors may delegate the duty of referring such employees to new jobs to the state and local offices of the Procurement and Assignment Service if this delegation is approved by the regional W.M.C. director.

A Proposed Method for Control of Food Utensil Sanitation*

RECOGNIZING a demand on the part of health officials for a method of determining whether or not food utensils have been rendered relatively free from bacteria by the ordinary procedures followed in washing and disinfecting food utensils in public eating and drinking establishments, consideration has been given to standardizing a test for this purpose.

Many health departments now are using bacteriological methods of one kind or another for the testing of utensils for bacterial content. The technics in use include that suggested by a subcommittee of the Committee on Research and Standards of this Association as published in the *Year Book for 1936–1937*,[1] an adaptation of the swab-rinse test for milk plant equipment which appears in the 8th Edition of *Standard Methods for the Examination of Dairy Products*[2] and other modifications proposed by individuals.

Your subcommittee has given serious thought to the basic problems involved, with a view either of developing improved methods or of making a current revision of the technic proposed in 1936 for use until better methods are investigated, standardized, and made available.

As in other problems of this kind, the ideal procedure would be to determine the presence or absence on the utensils of organisms pathogenic to man. The available procedures for identifying specific pathogenic bacteria are too time-consuming and too expensive for use in routine work of this kind. Furthermore, if examinations for all pathogenic organisms were made, and they were found to be absent on the particular utensils examined, there could be no assurance that they were not present on other utensils not examined at the time, or that they would not be present another day when a disease carrier happened to patronize the establishment from which the utensils were obtained.

Another possibility would be to examine the utensils for the presence or absence of some test organism, preferably one normally present only in the upper respiratory tract of man. In addition, perhaps an examination might be made for an organism indicating finger contamination of the utensil.

In a quest for a test organism from the upper respiratory tract, Dick and Hucker[3] report finding an organism identified as *Streptococcus salivarius* on the lips of 100 unselected individuals. They also report that, without exception, each of these 100 persons deposited streptococci on the rims of sterile glasses in drinking sterile liquid therefrom. They found that the organisms survived on the rims of drinking glasses in most instances for 48 hours or more. They suggest a technic for making a presumptive test for this organism. Considerable comparative routine laboratory work needs to be done to confirm these results and to demonstrate the relative advantages and disadvantages of this test before it can be considered for standardization for routine use.

Health departments have used the

* Progress Report of the Subcommittee on Food Utensil Sanitation of the Committee on Research and Standards for 1943.

test for coliform organisms as a possible indication of finger contamination. Some workers report that the results duplicate those obtained by the swab-rinse plate count technic. However, others report an appreciable percentage of positive coliform findings in instances in which bacteria counts were acceptable. Sufficient work has not been done to determine whether or not the use of the coliform test is advantageous.

An examination of the literature reveals that the test most commonly used to date for the examination of supposedly sterilized food utensils has been some form of the swab-rinse plate count technic. There are many variations in the details of the procedures used, possibly because the test is in a formative stage and no technic has been adopted as standard by the Association. The common basis for these varied technics is the previously mentioned standard proposed in 1936 by the former subcommittee. In addition to a swab-rinse plate count method, this included a rinse plate count technic in the performance of which such articles as forks and spoons were placed in a fruit jar containing sterile water and shaken, after which a standard plate count was made on the rinse water.

It is recognized that this general method of testing has weak points. It is difficult if not impossible to remove all or a fixed percentage of the bacteria from the surface such as the rim of a glass. Also the percentage of organisms transferred from the cotton swab to the rinse solution is variable. Furthermore, the rinse solution is not a favorable menstruum for maintaining viability, so plating must be done within a few hours, otherwise marked reductions in bacterial counts result. In addition there are the well known variables of the standard plate count technic.

However, notwithstanding these acknowledged weaknesses, the practical use of the test has shown that high counts generally are associated with the use of careless methods in washing and disinfecting utensils that would permit the passage of pathogenic organisms to the supposedly cleansed and sanitized utensils if such organisms happened to be present on the utensils at the beginning of the process or if the organisms are present in the wash or rinse waters. Of course, a test result indicating the presence of organisms in small numbers gives no assurance that pathogenic organisms may not be present. However, a low count does indicate the use of rather careful methods in washing, sanitizing, and handling the utensil up to the time the test is applied. The test also is useful in process-sampling by examining utensils at various stages of the process of rinsing, washing, sanitizing, handling, and storage.

Comparing this method with tests used in similar fields of public health work, the standard plate count, with all its faults, has been useful in the early stages of the public health control of water supplies to indicate gross contamination and in the supervision of milk supplies to indicate gross carelessness in the methods used in the production, processing, and handling of milk. Other and more specific tests are assuming increasing importance with the improvement of water and milk supplies.

The work in restaurant sanitation generally is at the early stage at which a test such as the swab-rinse plate count may be useful. By the time some of the worst conditions have been improved it is possible that new and more specific tests may be devised.

As a starting point, this subcommittee has revised the swab-rinse plate count technic in the light of the experience of recent years, and submits it for further constructive criticism before proposing its acceptance by the Association as a standard test. It is recognized that this technic will not give the highest possible count but is intended to give as nearly

as possible a comparable count. Suggestions may be sent to the committee through the Association office, or directly to the Chairman, W. D. Tiedeman, New York State Department of Health, Albany, N. Y.

TECHNIC FOR THE BACTERIOLOGICAL EXAMINATION OF FOOD UTENSILS AS REVISED AND PROPOSED FOR ADOPTION AS A STANDARD METHOD BY THE SUBCOMMITTEE ON FOOD UTENSIL SANITATION OF THE COMMITTEE ON RESEARCH AND STANDARDS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION IN OCTOBER, 1943

Apparatus and Materials — Sterile Petri dishes, sterile 1 ml. pipettes, standard tryptone glucose extract agar (without milk), sterile forceps or scissors, sterile cotton swabs on standard wooden applicator sticks, and sterile swab containers. Satisfactory containers consist of screw-cap swab bottles 23 by 70 mm. or 16 x 100 mm. bacteriological test tubes, with cork or rubber stoppers. Other tubes, vials or wide mouth bottles, ½ to 1 in. inside diameter and 2½ to 3½ in. high, and with mouth not less than ½ in. in diameter, may be used. Cotton plugs are not satisfactory. The swab holder may be attached to the cap or stopper, or separate dry swabs may be carried in glassine envelopes or sterile containers providing protection against contamination. The swab on the wooden applicator shall be of firmly twisted cotton, approximately 3/16 in. in diameter and ¾ in. long.

Buffered Distilled Water—The purpose is to secure a sterile solution that is non-toxic to bacteria. Prepare the phosphate buffer solution as directed in detail on page 126 of *Standard Methods for the Examination of Dairy Products*, 8th Edition (1941). Briefly, this is done by dissolving 34 gm. of potassium di-hydrogen phosphate in 500 ml. of distilled water, adding about 175 ml. of a normal sodium hydroxide solution, diluting to 1 liter with distilled water, adjusting this solution to pH 7.2, and diluting 1 ml. of this stock solution to 800 ml. with boiled and cooled distilled water. If the utensils to be swabbed are likely to contain residual chlorine, add 4 ml. of a 0.1 N sodium thiosulfate solution to the 1 ml. of stock solution before diluting it to 800 ml.

Distribute the diluted solution in the swab containers in amounts that will provide, after sterilizing in the autoclave at 121° C. for not less than 20 minutes, exactly 1 ml. for each utensil to be examined per swab; e.g., 4 ml. for 4 utensils, 5 ml. for 5 utensils, etc. The containers should be autoclaved either with the swabs in place or in separate containers and the caps slightly loosened.

Collecting Samples—Utensils to be examined shall include at least glasses, cups, and spoons, if used, and at least 4 of each shall be selected at random from the shelves or other places where clean utensils are stored. If a direct check of the dishwashing methods is desired, utensils should be selected from those recently washed. Care shall be taken to prevent contamination by handling during sampling.

Use 1 swab for each group of 4 or more similar utensils. Take the swab from a freshly opened container of dilution water or dip a sterile swab, if separate, in such dilution water, and squeeze it against the side of the container so as to remove excess water, leaving the swab moist but not wet. Rub the swab slowly and firmly three times over the significant surfaces of 4 or more similar utensils. After swabbing each utensil, return the swab to the container of dilution water, rotate the swab in the dilution water, and

press out the excess water against the side of the container before swabbing the next of the 4 or more utensils in the group.

The significant surfaces of utensils consist of the upper ½ in. of the inner and outer rims of cups and glasses and the entire inner and outer surfaces of the bowls of spoons. If it is desired to examine forks and surfaces of dishes, etc., the area to be swabbed should include the entire inner and outer surfaces of the tines of forks, and the inner surfaces of plates and bowls over an area of approximately 4 sq. in. that would come in contact with the food. The area to be swabbed on plates and bowls is to be estimated.

After completing the swabbing of all utensils in the group of 4 or more, replace the swab in the container of dilution water. Use a new swab container for the next group of utensils. Keep the containers iced while in transit to the laboratory, and plate the dilution water samples as soon as possible, preferably within 4 hours of swabbing.

Laboratory Procedure — Break the swab stick just above the cotton with sterile forceps, or cut with sterile scissors, allowing the cotton swab to drop into the diluent, where subsequent agitation should thoroughly disentangle the cotton which should be allowed to remain in the container while making transfers. Shake the swab container rapidly, making 50 round trip excursions of 4 to 6 in. with the container in one hand, striking the palm of the other hand at the end of each cycle, and completing the whole in about 10 seconds. Shaking machines may be used for time intervals found to disintegrate the cotton swab in a manner equivalent to the prescribed hand method. Transfer 1 ml. of the dilution water to a sterile Petri dish. Add approximately 10 ml. of melted standard tryptone glucose extract agar (without milk), mix, incubate for 48 hours at 35° to 37° C., and count as in making a Standard Plate Count. Avoid slight increases in temperature above 37° C., because they materially lessen the number of visible colonies that will develop. Report the count as the average plate count of organisms removed per utensil surface examined. For example, if 4 glasses are swabbed, if 1 ml. of the 4 ml. of dilution water is plated and if 56 colonies are counted after incubation, record the average plate count per glass surface as 56.

Laboratories not conforming fully with this procedure should have comparative evidence to show that the variations used give comparable results.

Interpretation — The average plate count per utensil surface examined should not exceed 100. Higher counts are presumptive evidence of inadequate cleansing or bactericidal treatment, or of recontamination by handling or during storage. Judgment should be made on the basis of repeated sampling.

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Serological Relationships within the Poliomyelitis Group of Viruses*

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EARLIER reports from this laboratory [1, 2] have described the adaptation of two strains of poliomyelitis virus (SK, MM) from monkey or man to albino mice by means of intermediary passage through cotton rats or hamsters. The resulting mouse viruses were identified by serological tests which demonstrated neutralization of both murine strains by immune sera prepared against simian poliomyelitis virus; on the other hand, neutralization of simian virus could not be obtained by antisera prepared against murine virus. Whatever immunological relationship existed between simian and murine virus was therefore non-reciprocal in character.

It seemed of interest to continue the study of these rodent viruses by immunological methods in two further directions. First, to compare the mouse-adapted strains among themselves for any relationship that might become apparent in cross-neutralization tests; second, to determine, by cross-neutralization, their immunological position in relation to Theiler's virus of spontaneous mouse encephalomyelitis. Since earlier experience [2, 3] had already demonstrated a certain degree of overlapping in serological reactivity between both murine strains (SK, MM) and antiserum prepared against Theiler's virus, the neutralization tests were planned in such a way as to permit of a quantitative interpretation of the data.

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EXPERIMENTAL WORK

A brief description of the methods used in carrying out these neutralization tests follows:

Virus—The three rodent viruses (SK, MM, Theiler GDVII) were maintained by serial intracerebral passage in young Swiss albino mice. Repeated titrations at periodic intervals showed little fluctuation in potency, except for Theiler's virus which acted irregularly on intraperitoneal injection during the summer months. The experiments were therefore suspended during that time of the year. Only virus freshly harvested from completely paralyzed mice was used for neutralization tests.

Immune sera—Monovalent immune sera against the three rodent viruses (SK, MM, Theiler) were prepared in rabbits. Live virus (10 per cent brain suspensions) was injected intravenously and intraperitoneally, twice a week, in slowly increasing doses (½ ml. to 2 ml., i.v.; 5 ml. to 20 ml., i.p.) over a period of 1 month or longer. When trial sera obtained 10 days after the last immunizing injection showed a satisfactory neutralizing titer, the animals were bled out. Sera of uniformly high potency were selected and pooled, according to virus, for use in the neu-

TABLE 1

Neutralization of SK Murine Poliomyelitis Virus by Homologous and Heterologous Antiviral Sera in Intracerebral and Intraperitoneal Tests

Antiviral Sera		Intracerebral Tests: Virus Dilution 10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	Potency of Serum	Titer of Virus	Intraperitoneal Tests: Virus Dilution 10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	Potency of Serum	Titer of Virus
SK Murine	Undiluted	3/3	9/9	9/9	10/12	4/10	2/9	1/5	10^{-6}		6/13	0/9	0/9	0/9	0/9	10^{-1}	
	1:10										0/10					10^{-1}	
	1:100										0/10					10^{-1}	
	1:500										1/6					10^{-1}	
	1:1,000										4/7						
MM Murine	Undiluted	5/5	5/5	5/5	5/5	2/5	1/5	2/5	10^{-5}		1/5	0/5	0/5	0/5	0/5	10^{-1}	
	1:10										2/5					10^{-1}(?)	
	1:100										1/5					10^{-1}	
	1:500										5/5						
Theiler Murine	Undiluted	3/3	5/5	5/5	3/3	4/5	4/5	4/5	0		0/6					10^{-1}	
	1:10										4/6						
	1:100										6/6						
	1:500										3/3						
	1:1,000										3/3						
RMV Simian	Undiluted	3/3	12/13	10/13	0/10	0/10	0/4	0/4	10^{-3}			12/15	2/15	0/15	0/15	10^{-2}	
Normal Rabbit Serum (Control)	Undiluted	5/5	7/7	12/12	12/12	12/12	10/10	8/10		10^{-7}	17/17	24/24	29/29	28/29	19/24		10^{-6}

TABLE 2

Neutralization of MM Murine Poliomyelitis Virus by Homologous and Heterologous Antiviral Sera in Intracerebral and Intraperitoneal Tests

Antiviral Sera		Intracerebral Tests: Virus Dilutions 10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}	Potency of Serum	Titer of Virus	Intraperitoneal Tests: Virus Dilutions 10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	Potency of Serum	Titer of Virus
SK Murine	Undiluted		3/3	5/5	3/3	3/5	3/3	1/5	1/5	0/5	0/5	10^{-7}		15/25	5/15	1/10		0/10	0/5				10^{-0}	
	1:10													7/15	2/5									
	1:100													5/5	3/5									
MM Murine	Undiluted				6/6	6/6	6/6	2/6	3/6	2/6	1/6	10^{-7}		0/11	0/6	0/6	0/3	0/3	0/3	0/3	0/3	0/3	10^{-1}	
	1:10													0/5									10^{-1}	
	1:100													2/5										
	1:500													4/5										
Theiler Murine	Undiluted		3/3	5/5	3/3	5/5	6/8	5/5	1/5	2/5		10^{-5}		8/25	2/15	1/10		0/10	0/5				10^{-1}	
	1:10													6/14	0/5									
	1:100													5/5	5/5									
RMV Simian	Undiluted		5/5	4/5	1/5	0/5	0/5	0/5	0/5	0/5	0/1	10^{-3}		5/5	5/5	1/5	1/5	1/5	0/5	0/5	0/5		10^{-2}	
Normal Rabbit Serum (Control)	Undiluted		5/5	5/5	5/5	5/5	10/11	11/11	11/11	11/11	9/11	1/5		10^{-5}	10/10	5/5	20/20	5/5	11/11	20/21	8/11	5/11	—		10^{-5}

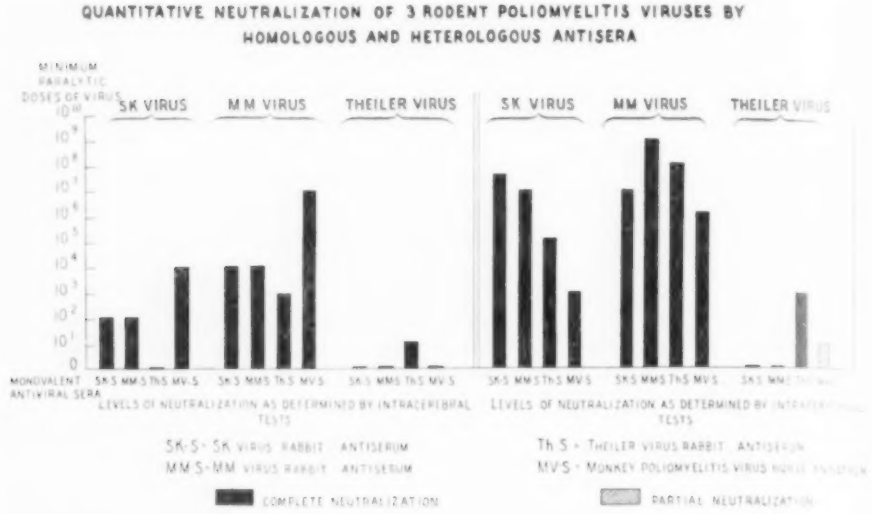
Numerator = number of mice paralyzed. Denominator = number of mice injected. For definition of potency of serum and titer of virus, see text.

tralization tests. A hyperimmune serum preparation (pseudoglobulin fraction) against simian virus, produced by immunization of horses with monkey poliomyelitis virus (RMV strain), was obtained through the courtesy of Dr. J. Toomey. According to Toomey's published data [4] this serum was capable of inactivating at least 50,000 minimal paralytic doses of simian virus as determined by intracerebral tests in rhesus monkeys.

Neutralization test—The test was carried out by adding virus to serum in definite proportions and injecting the mixtures, after incubation for 1 hour at 37° C., into groups of from 3 to 6 mice. The injections were made by either the intracerebral or the intraperitoneal route. In intracerebral tests with SK, MM, and Theiler's virus, 0.2 ml. of undiluted serum and 0.2 ml. of progressive virus dilutions were combined, and a volume of 0.03 ml. of the mixture was injected into individual mice. In intraperitoneal tests with SK and MM virus, 1 ml. of serum or serum dilution was combined with 1 ml. of virus dilution and a volume of 0.2 ml. of the mixture was injected into individual mice; for intraperitoneal tests with Theiler's virus the amounts were doubled, i.e., 2 ml. of serum were combined with 2 ml. of virus and the individual inoculum was 0.4 ml. Each test was accompanied by an adequate number of controls in which normal rabbit serum was substituted for immune serum, the technic otherwise remaining the same.

Interpretation of results—All injected mice were carefully observed for a period of from 2 to 3 weeks and the incidence of paralysis was recorded. With all three viruses paralysis was practically always followed by death. Deaths without preceding symptoms were noted on rare occasion, more often with Theiler's virus than with SK and MM virus. If these isolated deaths occurred at irregular intervals, the animal was eliminated from the entire count; the number of such eliminations was negligible. Neutralization was arbitrarily graded on the basis of the following criteria: 0 to $33\frac{1}{3}$ per cent paralysis = complete neutralization, 34 to $66\frac{2}{3}$ per cent paralysis = partial neutralization, 67 to 100 per cent paralysis = no neutralization. Endpoints of serum potency were calculated on the basis of the largest amount of virus in combination with the smallest amount of serum which yielded complete neutralization. Such endpoints were usually quite sharp; occasionally, however, the activity of a serum dropped irregularly over a range of virus dilutions. The titer of each virus was gauged by the highest dilution which caused from 80 to 100 per cent paralysis in the control animals. By recording the antiviral potency of a given serum, in terms of complete neutralization against multiple paralytic doses of a given virus, it became possible to arrive at a simple quantitative estimation of levels of neutralization for the several virus-serum systems. The original records, most of which represent pooled data from repeated tests, are given in Tables 1 to 3. The quantitative estimates are shown graphically in the attached diagram.

The above data which are based on a total in excess of 1,600 mice, more than 1,100 of which were used for the titration of immune sera and more than 500 for control purposes, reveal some puzzling facts. It will be observed, for instance, that SK and MM virus, in intracerebral tests, were cross-neutralized by their corresponding antisera at similar levels; intraperitoneal tests, on the other hand, show that in spite of marked overlapping in the immune reaction, each virus was best neutralized by its homologous antiserum. Intracerebral tests furthermore indicate that SK virus was not neutralized by Theiler


QUANTITATIVE NEUTRALIZATION OF 3 RODENT POLIOMYELITIS VIRUSES BY HOMOLOGOUS AND HETEROLOGOUS ANTISERA
MINIMUM PARALYTIC DOSES OF VIRUS
SK VIRUS
MM VIRUS
THEILER VIRUS
SK VIRUS
MM VIRUS
THEILER VIRUS
MONOVALENT ANTIVIRAL SERA
SK-S MM-S Th-S MV-S
LEVELS OF NEUTRALIZATION AS DETERMINED BY INTRACEREBRAL TESTS
LEVELS OF NEUTRALIZATION AS DETERMINED BY
TESTS
SK-S = SK VIRUS RABBIT ANTISERUM
MM-S = MM VIRUS RABBIT ANTISERUM
Th-S = THEILER VIRUS RABBIT ANTISERUM
MV-S = MONKEY POLIOMYELITIS VIRUS
COMPLETE NEUTRALIZATION
PARTIAL NEUTRALIZATION

antiserum, in contrast to MM virus which was markedly affected by the same serum; in intraperitoneal tests, however, both viruses were inactivated by Theiler antiserum, although to various degrees. These latter reactions appear to be strictly unilateral, for Theiler's virus, in intracerebral as well as intraperitoneal tests, remained completely refractory to neutralization by antisera against either SK or MM virus and showed only partial inactivation when tested intraperitoneally with simian hyperimmune serum.

Interestingly enough, analogous unilateral reactions are encountered again when one recalls the relationships of SK and MM virus with simian poliomyelitis

TABLE 3

Neutralization of Theiler's Mouse Encephalomyelitis Virus by Homologous and Heterologous Antiviral Sera in Intracerebral and Intraperitoneal Tests

		Intracerebral Tests									*Intraperitoneal Tests*			
		Virus Dilutions							*Potency of Serum*	*Titer of Virus*	*Virus Dilutions*		*Potency of Serum*	*Titer of Virus*
Antiviral Sera		10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}			10^{-1}	10^{-2}		
SK Murine	Undiluted	3/3	5/5	5/5	8/8	5/5	5/5	5/5	0		14/18		0	
MM Murine	Undiluted	5/5	5/5	5/5	5/5	5/5	5/5	4/5	0		4/5		0	
Theiler Murine	Undiluted	3/3	6/6	9/9	9/9	9/9	11/14	3/9	10^{-7}		0/15		10^{-1}	
	1:10										0/9		10^{-1}	
	1:100										0/9		10^{-1}	
	1:1,000										0/5		10^{-1}	
RMV Simian	Undiluted	6/6	10/10	10/10	4/4	9/9	4/5	4/5	0		19/27		10^{-1} Partial Neutr.	
Normal Rabbit Serum (Control)	Undiluted	11/11	18/18	18/18	16/16	16/17	10/12	11/13		10^{-7}	26/30	1/17		10^{-1}

Numerator = number of mice paralyzed
Denominator = number of mice injected
For definition of potency of serum and titer of virus—see text.

virus. Thus, both murine strains were inactivated, intracerebrally as well as intraperitoneally, by anti-poliomyelitis monkey virus serum, while antisera prepared with either SK [1] or MM [5] murine virus were devoid of any neutralizing power against simian virus (SK, RMV, Aycock) in intracerebral monkey tests; similarly, Theiler convalescent mouse serum is said to be without any effect on simian poliomyelitis virus.[6] In other words, monkey (or human) poliomyelitis virus and Theiler's virus of mouse encephalomyelitis, emerge as highly specialized infectious agents which yield to complete inactivation only by contact with their homologous antisera, whereas the two mouse-adapted strains of human poliomyelitis virus (SK, MM) engage in reciprocal interaction between themselves in addition to non-reciprocal interaction with both Theiler's virus and simian poliomyelitis virus.

DISCUSSION

The foregoing observations suggest a relatively simple immunological structure for simian poliomyelitis virus as well as for Theiler's virus of mouse encephalomyelitis. By contrast, the two mouse-adapted strains of human poliomyelitis virus (SK, MM) evidently represent highly complex antigenic mosaics, including major and minor receptors, some of which seem to function like haptenes. It appears furthermore that different methods of testing may yield different results. Thus, intracerebral tests gave evidence of group- (or species-) specific and intraperitoneal tests of strain- (or type-) specific inactivation of virus. It therefore seems reasonable to assume the presence in the virus molecule of components, with varying degrees of specialization, associated, on the one hand, with virus multiplication in nervous tissue and, on the other, with virus invasion by peripheral channels. There is evidence to show that the peripherally acting component can deteriorate and become silent in the pathogenic sense, for immunization with SK tissue culture virus, harvested from remote *in vitro* generations which were no longer infective by peripheral routes (intraperitoneal, nasal, feeding), produced an antiserum capable of neutralizing SK virus, in both intracerebral and intraperitoneal tests, at levels identical with those observed with antiserum prepared with peripherally infective SK mouse passage virus.

The available data mark the two murine strains (SK, MM) as separate but closely related viruses in which homologous antigens are blended with heterologous antigens. It is also clear that both viruses have incorporated in them certain accessory fractions peculiar to simian poliomyelitis virus and to Theiler's virus.* The picture thus presented leads to an impression that human poliomyelitis virus and Theiler's virus may be natural variants of a common viral root, whereas the experimentally adapted murine viruses represent hybrid strains which occupy a position somewhere between these two fixed borders. It is probable that in such a scheme MM murine virus lies closer to Theiler's virus than does SK murine virus. Inclusion of the several viruses referred to, i.e., human, human-murine, and Theiler, in one family of intrinsically related viral agents under the designation of "poliomyelitis group"—originally proposed by us because of the variability in biological characteristics of the respective viruses [7] —appears therefore further justified in the light of the antigenic analysis just

* Recent observations by Melnick [7] which have failed to demonstrate any reaction between SK murine poliomyelitis virus and Theiler antiserum in complement-fixation tests are in agreement with the results of our intracerebral but not intraperitoneal neutralization tests. It is possible that neutralization measures immunological reactivity *in vivo* more delicately than what is indicated by complement-fixation *in vitro*.

reported. The proposed unification is based on principles similar to those that have governed recent efforts to consolidate in one "encephalitis group" certain encephalitogenic viruses which likewise engage in reciprocal and non-reciprocal immunological interaction.[8, 9] More particularly, it serves to substantiate an empirical classification, advanced by Gard [10] essentially on morphological grounds, which groups human, murine, and porcine strains of poliomyelitis virus under the same term as proposed here.

CONCLUSIONS AND SUMMARY

Cross-neutralization tests between two mouse-adapted strains of human poliomyelitis virus and Theiler's virus of mouse encephalomyelitis and corresponding antiviral immune sera revealed overlapping reactions of various degrees between the three viruses. The overlapping reactions, in some instances were reciprocal, in others non-reciprocal in character. Different results were obtained with intracerebral and intraperitoneal methods of testing, the former giving evidence of group-specific, the latter of strain-specific virus inactivation. The immunological data are discussed in their bearing on the position of the experimentally adapted murine strains in relation to Theiler's virus, on the one hand, and human poliomyelitis virus, on the other.

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The Problem of Industrial Noise*

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EXPOSURE to excessive noise is a part of the price that modern man pays for a highly mechanized civilization. The major contributions of science to the solution of the noise problem are through the marshalling of data showing that the resulting annoyance is a positive menace to the health and well-being of human beings, the development of means of measuring its physical intensity and the discovery of methods and materials for sound absorption and sound insulation which make the reduction of noise possible.

The quantitative aspect of noise, together with the decibel scale on which noise levels are represented, can best be shown as in Table 1. By comparing these levels with the levels measured in manufacturing plants we can form some conception of the acoustical environment of the men and women who are fighting the battle of production in shops and factories.

TABLE 1

Noise Level (decibels)	*Physical Intensity*	*Example*
0	1	Threshold of hearing
10	10	Whisper at 5 feet
20	100	Very quiet room
30	1,000	Quiet private office
40	10,000	Subdued conversation
50	100,000	Business office
60	1,000,000	Ordinary conversation
70	10,000,000	Busy city traffic
80	100,000,000	Chicago elevated at street level
90	1,000,000,000	Pneumatic drill, 10 feet
100	10,000,000,000	Subway express passing local station
110	100,000,000,000	Airplane propeller noise heard at 10 feet
120	1,000,000,000,000	Threshold of painful sound
130	10,000,000,000,000	

The following figures are taken from a recent paper by Hale J. Sabine and R. A. Wilson [1] giving the results of noise measurements in a number of war manufacturing plants (Table 2). These levels are of the same order of magnitude as those in boiler factories, sound intensities which otologists recognize as the cause of so-called "boilermakers' deafness."

There is a wealth of reliable data from medical sources in support of the statement that sustained exposure to noise is a "contributing factor in impaired hearing, chronic fatigue that lowers bodily resistance, neurasthenia, increased blood pressure, and decreased working and mental efficiency," and that "noise should rightfully be classified as an occupational hazard along with gases, fumes, dust, toxic liquids, and bacteria."

Bulletin 166, 1930, of the New York Department of Labor, states that of

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-second Annual Meeting in New York, N. Y., October 13, 1943.

TABLE 2

Noise Levels, in Decibels, of Various Machines at a Distance of 3 Feet

Punch presses, various types	96-103
Drop hammers	99-101
Bumping hammer	100
Hydraulic press	130
Automatic riveters	95-99
Lathes (average)	80
Automatic screw machines	93-100
Airplane riveting guns	94-105
Airplane propeller grinding	100-105
Looms	94-101
Wood planers	98-110
Wood saw	100

1,040 workers in noisy industries tested for deafness, the highest percentage of hearing impairment for any age group was from the noisiest industries. Of the 246 persons in this group found to be deaf, 155 cases were traceable to industrial causes. In his work, *Occupational Disease,* W. G. Thompson [2] states that 45 per cent of locomotive crew men have impaired hearing. McCord [3] gives 52 per cent as the incidence of deafness among train dispatchers, and this occurs largely in the telephone ear—the left. Recent studies on the effects of noise in military airplanes gives the noise level in the cabin of a two-engine bomber as 115 decibels. The measured loss of hearing, after 10 hours' exposure to this noise level, is in some cases as great as 30 decibels. Only after 36 hours following exposure do most of these cases show complete recovery. In a recent paper, "Acoustic Trauma in Man," Dr. H. B. Perlman [4] states, "Many types of sound stimuli are now known to be injurious to the ear," and he lists among these the noises of pneumatically-driven tools, gasoline motors, Diesel engines, and locomotive whistles.

Occupational deafness is the most spectacular and widely recognized type of injury resulting from extreme noise. Less obvious but not less serious is the nervous fatigue which noise induces. Perlman [4] points out that in the presence of intermittent noise there is a periodic tension and relaxation of the involuntary musculature by which the fibers of the auditory nerves are protected from very loud sounds, just as the eye is protected from very intense light by the contraction of the pupil. The unconscious nervous strain produced is similar to that from a flickering light. Dr. Foster Kennedy [5] found that a sharp loud report increased the intracranial pressure by as much as fourfold. He says: "Constant noise excites and irritates, it alters conduct, it causes loss of temper and plays a part in quarrels. To overcome the effect of noise, a strain is put on the nervous system leading to neurasthenic and psycasthenic states."

Smith and Laird [6] found that in four healthy persons a decrease of 37 per cent in the number of stomach contractions results from exposure to sound levels of 80 to 90 db. Experiments on decerebrated dogs have shown that auditory stimulation produces reflex responses in the entire sympathetic nervous system. Laird [7] reports that the metabolic rate of four typists working at maximum speed decreased from 71 per cent to 52 per cent over the rate when at rest, as a result of a 7 decibel drop in the noise level.

That the ill effects of noise are not consciously recognized does not alter the fact that they exist as a constant drain on nervous and physical energy. The amazing capacity of the human species for adaptation to any environment is perhaps the sole claim which we mortals have to first place in the evolutionary scheme. But adaptation to a bad environment does not do away with the resultant evils of such an environment. Nor does it reduce the social obligation to improve it.

One of the sure ways to get remedial action under a capitalistic economy is to establish the fact that such action will yield results that can be measured in dollars and cents. About twenty-five years ago, it was found that the

noise in business offices could be reduced by the application of sound absorbent treatment to the ceiling and walls of office spaces. That this reduction added to the comfort of office workers was obvious. Proof that it yielded returns in increased output of the office force has been given by numerous investigations by office management. One of the most convincing was that made by the Aetna Life Insurance Company, and reported by P. B. Griswold to the National Office Management Association in June, 1930. Employees in the departments studied worked on a bonus system, under which bonuses were awarded on the basis of the efficiency of each department as a whole. Records of efficiency in three departments were kept for a year prior to installing absorbent treatment, and for a year afterward, all other conditions remaining constant over the whole 2 year period. The reduction in the noise level was 8 decibels, approximately 50 per cent in the loudness. The measured increase in efficiency in these departments was 8.8 per cent, the decrease in the number of errors was 25 per cent.

While the purely commercial value of quieting for office workers has become a commonplace, yet it has been only within the last few years that any serious attention has been given to the problem of noise in industrial plants. Only with the war demand for increased production and the influx of women workers into heavy industries, has the noise problem received any consideration on the part of industrial management. Dr. Foster Kennedy[5] cites the results of a study of Bogardus in 1911 to the effect that fatigue was a contributing cause in 82 per cent of 2,678 accidents examined. It is a well established fact that women are more subject to physical strain and have a greater short-sickness rate than men. If women are to retain (which God forbid) any considerable part in heavy industry then, from the standpoint of both public health and efficient management, the greater susceptibility of women to an adverse acoustical environment should be recognized.

The control of noise in industrial plants is a far more difficult problem than in business offices. Noiseless (or nearly so) typewriters, yes! But a noiseless punch press or riveter, no! The seven or eight decibels reduction to be had by absorbent treatment changes the annoyance of a noisy office to a condition of reasonable comfort. But the same reduction in the 90 or 100 decibels in a factory still leaves the din much above the comfort level. However, experience in a considerable number of recently constructed plants has shown that benefits beyond what might be expected from the mere reduction of noise level follow from acoustical treatment. Sabine and Wilson[1] state that their investigations led to the conclusion that "It is often possible for an acoustically treated area to be more comfortable than an untreated area having actually a lower noise level."

Analysis of the comments of workers in plants that had been acoustically treated disclosed that two elements, partly psychological and partly objective, contribute to the "noisiness" of a worker's environment.

The first is reverberation, that is the prolongation of a sound by repeated reflections from highly reflecting wall and ceiling surfaces. In a reverberant space, the worker has the sensation of working at a noisy machine in a noisy environment. Replacing the reflecting surfaces by absorbing surfaces reduces the environmental factor, thus markedly reducing the annoyance, even though the measured noise level is not greatly decreased. The second element is the so-called "spreading effect" of sound. In an open space the intensity of sound from a given source falls off rapidly as

the distance increases. In reverberant rooms the sound intensity from a single source is almost independent of the distance from the source—the sound spreads with little diminution with distance. As absorbent treatment greatly reduces this spreading effect, the man working at a noisy machine has the feeling of a relatively quiet surrounding. That workers recognize this effect is attested by their comments on conditions before and after acoustical treatment, such as, "The noise of that machine over there stays where it belongs," or "Before, it seemed like every machine in the plant was making noise. Now I can hear only the ones right around me." That absorbent treatment of factory walls and ceilings is worth while is evidenced by its increasing use in modern industrial plants.

Further reduction of factory noise can be obtained by intelligent planning of the plant layout. Isolation by means of effective shock mounting of heavy machines will reduce building vibrations which are transmitted with almost undiminished intensity throughout steel and concrete structures. Extremely noisy machines should be segregated from areas which would otherwise be relatively quiet. I recall one instance where the screech of a wood planer in one end of a packing room made a terrific racket for scores of girls and women who might otherwise have worked in relative quiet.

An illustration of this means of noise reduction is in the designing of airplane engine test cells. Before acceptance by the Army or Navy all engines must be subjected for many hours to extreme tests and measurements. The noise generated by a 1,500 to 2,000 horsepower internal combusion engine enclosed within concrete walls is something that would better be imagined than experienced. Levels of 130 decibels and more are created, corresponding to sound intensities 1,000 times that in the proverbial boiler factory. Yet by properly designed walls, shock mounting of the engines under test, and providing tightly closing sound insulating doors of special construction, it has been possible to secure a degree of insulation that reduces the noise level in the adjacent test rooms to levels of the order of 80 to 85 decibels. Here the solution of the noise problem was an absolute necessity for the engineers making the tests.

In spite of all that can be done, however, it must be admitted that factories where steel mightily smites steel are bound to be noisy places. Recognizing the fact that noise is a health hazard, all possible measures to protect workers from its effects should be taken. Among these should be (1) the employment of men rather than women for jobs where noise is excessive; (2) allowance of frequent rest periods to relieve the strain of prolonged exposure to noise; (3) provision of simple ear defenders for those working at extremely noisy machines (the fifteen or twenty decibel reduction afforded by a plug of cotton moistened with vaseline may make the difference between injury and safety); and (4) recognition that work in extreme noise takes more out of the worker than the same amount of labor in quiet surroundings.

The problem of noise in low-cost multiple unit dwellings has received very little, if any, attention in this country. Even in apartment houses that are well above the low-cost level, the transmission of sound between adjacent apartments and between floors is all too frequently a just cause for serious complaint. Scientific measurements have shown that for the usual types of construction the insulation for airborne sound afforded by partition walls is almost wholly a matter of their weight. Light, cheaply built walls and floors are slight barriers to the passage of sound. Today, sound insulation can

be obtained only at a price, and this price is well above the limit set by rentals for low-cost dwellings.

However, cheap means of sound insulation are not impossible. It is only that no serious research on the problem has as yet been carried out. Only when we become fully alive to the fact that quiet living conditions are essential to the health and efficiency of the industrial worker, will the question of noise receive the attention it deserves in the planning of workers' homes. We note in the news that one million dwelling units will be needed to convert from wartime to peacetime housing. Only by insistent and coöperative effort on the part of architects, scientists, and building authorities have we any hope that these new homes will be any less noisy than the boxes stacked one on top of another in which millions of workers' families now have to live.

A part of the problem of industrial noise is relief from the endless clatter and racket of urban life. The most effective and sustained effort in this direction has been put forth in New York City. This began in 1929 with the appointment of a Noise Abatement Commission by the then Commissioner of Public Health, Dr. Shirley W. Wynne. The full story of the work of that commission is contained in a comprehensive brochure under the title of "City Noise," which has served as a textbook and guide for similar campaigns in other cities.

Since that time the flood of noise in this city has ebbed and flowed with the varying zeal of city authorities in the enforcement of the police restriction on needless noise. My personal judgment as a frequent visitor is that New York is a much quieter city now than it was fifteen years ago. We all know, though, that there is still a long way to go along this road. The experience, here and in other cities, shows that sporadic and hysterical "ballyhoos," with *un*enforced police regulations against noise are futile unless coöperation of the public at large can be obtained.

To meet the need for a sustained, consistent, nation-wide campaign of education for less noise, the National Noise Abatement Council was set up five years ago. This is an association of manufacturers, civic and business groups, and others, organized for the purpose of promoting a "national consciousness of the need for noise control; to publicize the causes and the cost of noise, and ways and means for controlling and abating objectionable noises on city streets, in factories, offices, schools and homes." From small beginnings, the movement has spread and today there are in 48 of the larger cities of the country committees actively at work in carrying out the purposes of the Council. On every hand there is evidence of a growing interest in noise abatement. With the financial backing of commercial interests, the work of the Council promises to be a sane and persisting campaign for relief from an evil which all public-minded people recognize as a menace to the health and sanity of us all. Noise, once created, travels at a speed of one-fifth of a mile per second in ever-widening circles, and nothing can be done about *that*. The only effective remedy is to get people to make less of it. To get this idea across to the public at large is the goal of the National Noise Abatement Council. The coördination of the activities of the Council with those of groups attacking the problem from the standpoint of industrial hygiene should materially help in extending the zone of quiet into the whole industrial environment.

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Conference on Rheumatic Fever

A conference on rheumatic fever under the auspices of the American Heart Association was held in New York, N. Y., on January 26 and 27 to appraise the rising tide of professional and lay interest in rheumatic fever as a public health problem and to consider what can and should be done. The American Public Health Association was represented at the conference by David Rutstein, M.D., Deputy Commissioner, New York City Department of Health, and Reginald M. Atwater, M.D., Executive Secretary of the A.P.H.A.

The conference adopted the following resolutions:

1. Because of the magnitude and importance of the rheumatic fever problem, this conference is strongly in favor of the extension of public programs, supported by federal, state, and local funds, for the study, prevention, and treatment of this disease. Moreover, we believe it is essential that additional funds be secured from private sources for the purpose of special studies to increase basic knowledge of the disease, for professional education, and for increasing public awareness of the problem.

2. In order to accomplish the purposes mentioned above, this conference recommends that a Council on Rheumatic Fever be formed under the leadership of the American Heart Association, and that this council shall include representatives of interested organizations.

Subsequently the American Heart Association accepted responsibility for the formation of a Council on Rheumatic Fever and has invited the American Public Health Association, along with other agencies, to participate in the formation and work of this council through the appointment of suitable representatives. It is anticipated that the council will be an active body with its own offices, a full-time director, and a competent staff of secretaries and assistants.

The functions of the council are expected to include the formulation of adequate programs for communities of various sizes, advice to governmental, professional, and lay groups interested in the disease, and the sponsoring of research in many aspects of rheumatic fever.

The Physician's Confidential Medical Report of Cause of Death*

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EVERY sound public health program must be soundly based. Preferably that basis should be complete statistics of morbidity. No state or city in the United States, nor in any other country so far as I know, has yet attempted to adjust its public health program to this basis. Rather, communities have generally been content to develop public health programs on the basis of the reported causes of death and the reports of cases of a limited number of diseases, which are generally classified under the term "preventable."

Mortality statistics are a poor substitute for morbidity statistics as the basis of public health planning and administration. In a city like New York, for example, the discharge diagnosis for every person admitted to the municipal hospitals would probably be a much sounder basis for the public health program than the combination of statistics of mortality and preventable disease presently used. However, until the basis is changed, everything possible must be done to make our present guides as accurate as they can be. At this time, when so many of the physicians who normally practise in New York City are in the military services and those remaining in civilian practice are so hard pressed, there are many indications that the reporting of cases of illness—tuberculosis and pneumonia, to cite two important examples—is grossly incomplete. It is, therefore, of the utmost importance that the cause-of-death statistics be of the highest order.

In New York City, we are attempting to overcome the shortcomings of the traditional methods of reporting deaths and their causes by experimenting with a form of reporting deaths from natural causes in a manner which assures that the medical diagnosis will be treated as a confidential communication to the Department of Health. It is my purpose in this paper to outline briefly the legal bases for this procedure and the practical reasons which, we feel, make its adoption essential.

PERTINENT LEGISLATION

The Civil Practice Act of the State of New York provides that a physician ". . . shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity . . ." other than in the case of a crime committed upon a patient under 16 years of age,[1] except when, upon a trial or examination in open court, the prohibition cited above is expressly waived by the patient or by the personal representatives of a deceased patient.[2] Obviously, the statement of the cause of death of a person in a death certificate does not fall among the exceptions to the application of these laws.

However, the New York City Charter gives to the Board of Health of

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-second Annual Meeting in New York, N. Y., October 12, 1943.

the City, the power to adopt a Sanitary Code which "shall have the force and effect of law,"[3] and the Charter expressly instructs the Board of Health to prescribe the persons who shall be required to file certificates of death with the department and the form of such certificates.[4] Moreover, the Administrative Code of the City authorizes the Board of Health to issue transcripts of death certificates and to determine the form of such transcripts.[5]

In accordance with these general and specific powers granted by the Charter, the Board of Health, on December 12, 1938, adopted a revision of Section 33 of the Sanitary Code perpetuating regulations requiring the reporting of deaths that have been in effect for 150 years, and providing, when deaths were due to natural causes, for the reporting of the medical diagnosis of the cause of death on a confidential medical report.

COURT RULINGS

The provisions of Section 354 of the Civil Practice Act and of Section 33 of the Sanitary Code of the City of New York would appear to be in conflict and, in fact, they are. But the Court of Appeals of the State of New York has ruled that in spite of the provision of the Civil Practice Act which apparently prohibits a physician from disclosing information regarding the illnesses suffered by a person, since deceased, it is a proper exercise of the police power granted to municipalities to require the reporting of deaths, and the causes thereof, because such information is required for *public* purposes, namely, the protection of the public health.[6]

Hence there may be no question regarding the authority of the Department of Health of the City of New York (a) to require the reporting of deaths and the causes thereof, (b) to prescribe the form and manner of reporting, (c) to issue transcripts of death certificates, and (d) to prescribe the form of such transcripts.

The highest courts of the state have apparently not passed on the propriety of the issuance of transcripts of death certificates including the cause of death as reported to it by a physician in attendance upon a patient before his death, by a department of health, because that right has not been challenged by the medical profession. But the Court of Appeals of the State of New York has ruled that a certificate of death or a certified copy thereof is not admissible in any court action between private parties, as proof of the cause of death,[6] although it has been held that such a document may be received as *prima facie* evidence of the fact of death. Hence exclusion of the cause of death from the certificate of death does not deprive persons receiving copies of essential information.[7]

PRACTITIONER'S PRACTICES

It is well known to some of us that physicians as a group will not invariably report the true cause of death on a form which will be reproduced photographically, or otherwise, and released to anyone—particularly to a relative of the decedent—for use in proving the *fact* of death of the individual in the settlement of his estate. Such a disclosure would not only violate the provisions of law mentioned above but it would also violate one of the principles of medical ethics summarized in the following quotation from the oath of Hippocrates:

"Whatsover house I enter, there will I go for the benefit of the sick. . . . Whatsoever things I see or hear concerning the life of men, in my attendance on the sick or even apart therefrom, which ought not to be noised abroad, I will keep silence thereon, counting such things to be as sacred secrets."

Even if physicians were not guided

by any such principle of professional ethics or were not prohibited by law from disclosing information they collect either through inquiry or examination in the course of treating patients, they would generally refrain from divulging such information, particularly if it should reflect unfavorably on the patient, because of the fear that the patient or his relatives might take offense and that he might in that way lose clients. Under such conditions, the Department of Health may be deprived of important and essential information.

A CONFIDENTIAL METHOD OF REPORTING CAUSES OF DEATH

Recognizing the principles cited above, a new method of reporting deaths due to natural causes has been devised and used in the Borough of Manhattan, City of New York, since January 1, 1939. The Sanitary Code covers this matter in the following terms: "The physician's confidential medical report of a death, required to be filed with such certificate of death, shall be deemed not a part of the certificate of death and shall be regarded and treated as a confidential and privileged communication, and shall not be subject to subpoena or open to inspection for any purpose whatsoever, except for scientific purposes approved by the Board of Health."

This confidential medical report, which is separate and apart from the certificate of death, is forwarded to the department in an envelope sealed by the physician. In practice, the funeral director acts as messenger and the death certificate and the confidential medical report are filed with the department at the same time. It is obvious that the confidential medical report must be filed before any burial permit can be issued.

It is to be noted that deaths when unattended by a physician, deaths that occur under unusual or suspicious conditions, as well as deaths from external cause—accidents, homicides, and suicides—are required by law to be investigated by the Office of the Chief Medical Examiner of the city and that such deaths are reported on the form of certificate in which the diagnoses are fully given. The public official who prepares such a certificate is in an entirely different category from that of the physician who attended a person during his lifetime. The law provides that, except in cases under investigation by a Grand Jury or a District Attorney, the records of the Office of the Chief Medical Examiner shall be open to inspection.

Those persons who developed the idea of having a health department issue complete copies of death certificates, including the medical diagnoses recorded by the attending physician, did not realize, I am sure, that the issuance of transcripts of death certificates might lead to a situation under which a health department would be deprived of important information—the information, in fact, that constituted the primary reason for having death registration a function of a health department.

Under the usual practices of reporting deaths and issuing transcripts, diagnoses that cause trouble between physicians and the relatives of deceased persons fall into four categories:

1. Those that tend to disgrace the memory of the deceased: congenital malformation, mental deficiency, syphilis, alcoholism, suicide, epilepsy.

2. Those that cause fear: diabetes, tuberculosis, cancer, heart disease, poliomyelitis, leprosy, smallpox.

3. Those that might reflect unfavorably upon the physician: birth injury, puerperal septicemia, infantile diarrhea, induced abortion.

4. Those that might cause difficulty in collecting insurance. (There are still some companies that disclaim all liability in the event of death from tuberculosis.) In other instances, the combination of the reported cause of death and the duration of the disease may clearly imply that a policy of insurance was obtained by fraud. I have

no knowledge of the number of instances in which controversies arise between insurance companies and the beneficiaries of life insurance policies, but I do know that they occur. If an insurance claim is contested, the person named as beneficiary in an insurance policy blames the physician, justly or unjustly, and the physician loses that person and his or her family as clients. Physicians are human, and the pressure to withhold information is great. However, any deviation from the truth tends to vitiate the statistics of death by cause and thus deprive the health department of information that is essential to the planning and administration of the public health program.

CONCLUSION

It was never contemplated—by the author, at least—that the use of this confidential method of reporting causes of death would correct all the shortcomings of cause-of-death reporting overnight. It required twenty years to achieve the desired results in Switzerland, where this method of reporting was first applied, and it will evidently require years here. A test is now being made to determine whether this method is presently yielding results that are superior to the old method of open reporting. Unfortunately, the results of this test are not yet available. One thing can be said: physicians apparently like it. When asked if they would object to extension of this form of reporting to the remainder of the city, the Medical Societies in the other four counties all voted in favor of it.

REFERENCES

1. Section 352, Civil Practice Act: "Physicians and Nurses," etc.
2. Section 354, Civil Practice Act: "Application of Sections," etc.
3. Section 558, New York City Charter.
4. Section 567, New York City Charter.
5. Section 567-4.0 (b), Administrative Code of the City of New York.
6. 165 N. Y. 159; 173 N. Y. 374 (1903).
7. Actions have been threatened, and at least one proceeded so far as to be placed on the court calendar, to compel the department by mandamus to issue a copy of the confidential medical report. These actions have invariably been withdrawn before trial.

Rôle of the Public Health Laboratory in Gas Defense*

EUGENE W. SCOTT, PH.D.

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IT seems natural to introduce this subject with a brief discussion of the likelihood of gas attacks on civilians in this country or in Europe. Various military authorities have expressed personal opinions that Germany would resort to the use of war gases when she felt that there was something to be gained by their use. The manner in which the German "blitz" operated in the days when it was the dominant military force in the first part of the war precluded the effective use of war gases. There was no need of them and in many cases the use of persistent war gases would have resulted in slowing down the advancing armies. Now, there is another reason deterring Germany from introducing chemical warfare; that is, the knowledge that both England and the United States have plentiful stocks of chemical warfare agents, and that they are in a position to retaliate in full measure for anything which Germany may use. It seems entirely possible therefore that chemical warfare will not be initiated in the European theater of operations.

On the other hand, Japan, with its home bases relatively secure, may at any time introduce gas warfare. There is no question but that the advance army commands and the naval facilities of the Japanese fleet are equipped with gas munitions which the commander may decide to use with or without official approval of higher authority. It seems certain that Japan will not hesitate to use war gases because of humanitarian reasons.

Since December, 1941, the Office of Civilian Defense has advocated and aided in the establishment of civilian defense organizations for all cities in the United States. The establishment of complete organizations has been emphasized particularly in the coastal regions and areas bordering on the Great Lakes and Gulf Coast. Gas defense was started with the Decontamination Units which were organized at the same time as the Air Raid Warden, Auxiliary Police, Auxiliary Fire, and related units. Later, the gas defense organization was expanded to include individuals with duties specifically related to identification and protection against war gases. In many places this organization has been trained and is in a state of readiness. It should be noted that the recommended gas defense organization is considered only a basic nucleus which will be expanded if gas attacks become a reality.

Some individuals believe that no form of civilian defense will be required in this country, since they think that the Germans will have their hands full defending their own country and conquered areas. It is also felt that Japan, with the loss of its bases in the Aleutians, is not capable of attacking the continental United States. This feeling of complacency is the most im-

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portant thing we have to combat at the present time. Unquestionably it has become more difficult for either of these enemies to reach this country by air. It is still not impossible for them to do so. The Office of Civilian Defense, therefore, is obligated to maintain the civilian protection organization which has been established until it is certain that there will be no need for it.

The gas defense organization established by the Office of Civilian Defense for the United States comprises in the neighborhood of 10,000 volunteer workers. We expect to keep these persons enrolled for the duration of the war or until we are absolutely certain that gas will not be used on civilians in this country. This gas defense organization is made up principally of the chemically trained men of the communities and, in case of gas attacks, will form a large nucleus for the expansion of gas protection services as required.

The Office of Civilian Defense is an advisory organization to the states and consists of a staff in Washington and field staffs in nine regional offices throughout the country. At each location there are one or two individuals responsible for the organization of the gas defense program. It has been recommended that each state appoint a State Gas Consultant to be responsible for the gas defense program of the state, and most of the states have done so. Finally, it is expected that each large city will appoint a Senior Gas Officer to direct the gas defense program of the community. Under him will be found the identification officers of the Gas Reconnaissance Unit. He should also be responsible for the training of the Decontamination Unit and the direction of the unit if the need arises. In addition, all hospitals and casualty stations in the critical zones have been advised to select facilities which may be used for the cleansing of injured persons who have become contaminated with vesicant war gases. Finally, we have the Emergency Medical Service as a part of the gas defense organization, in that any physician in the service may be called upon to treat injuries due to war gases. In order to provide these doctors with the knowledge required to treat such injuries, a training program on the treatment of chemical casualties has been carried on by the medical schools of the country in coöperation with the Office of Civilian Defense.

In addition to the direct protection of persons from these agents, it is also important that their food and water be protected. In case of a gas attack, considerable contamination of both food and water may occur. The contamination of large supplies of water such as city reservoirs is not very likely, since enormous amounts of war gases would be required to make the water unsafe to drink. This is particularly true if the stored water is subjected to a purification process from which it is pumped directly into the water supply system. Purification processes such as chlorination, coagulation, sedimentation, and filtration will ordinarily remove almost any war gas contaminant, although there are a few exceptions. Contamination can be detected quickly by marked changes in the pH of the water, in the chlorine demand, and in the chloride content of the water. The purity of a public water supply is the responsibility of the city department regulating the water supply, but in most cases the health department must ascertain by analysis whether or not such water is safe to drink. In times of emergency, these responsibilities are not changed, but routine purification and analyses are not sufficient. Special precautions must be taken to insure that the enemy attacks have not disturbed the safety of the drinking water. If war gases have been used, special tests for such materials should be inaugurated to insure that contamination will be detected as

soon as it occurs. The tests mentioned above are not specific, but are easy to perform and are good indications of contamination. In contrast to public water supplies, private water supplies might easily be contaminated during war gas attacks from the air and any such supplies in a gassed area should be sampled and analyzed by the health department as soon as possible after such attacks.

The chief duty of the health department of any city is to protect the health of the community under enemy attack as well as in peacetime. In the case of an enemy attack, the problem becomes more difficult, even if only explosive bombs are used, and still more difficult if these bombs are mixed with war gases. All sources of food and all food supplies in an area contaminated by war gases must be examined, therefore, before such sources or such foods are permitted to be used. This is the chief problem which will confront the health department in case war gases are used.

It will not be the responsibility of the Senior Gas Officer of the community to certify that food and water are or are not contaminated. However, he will indicate to the health department laboratory what areas have been contaminated and his organization will aid in the collection of food samples for analysis and in carrying out the orders of the health department. In many cases it may be advisable to utilize the services of the Gas Reconnaissance Unit in the inspection of suspected foods, since a widespread area of contamination would require the work of a considerable number of individuals in order to carry out such inspections. In most cases, the staff of the Senior Gas Officer is composed of individuals experienced in chemistry with special training in chemical warfare. With rather brief instruction it should be possible to utilize them very satisfactorily in carrying out this necessary work of inspecting suspected foods.

The public health laboratory should therefore be prepared to analyze food, milk, and water for war gases. All the common war gases can be detected specifically by means of reactions which are described in the literature and in standard reference books on the subject of war gases. Two books of particular value are Jacobs' *War Gases, Their Decontamination and Identification*, and Sartori's *The War Gases*. Memorandums on the detection of war gases in water have been prepared and can be obtained from the Stream Pollution Investigations Station of the U. S. Public Health Service at Cincinnati, Ohio. In addition to these sources the Office of Civilian Defense has recently published a memorandum on "Identification of Chemical Warfare Agents" which will be available from the Government Printing Office. The samples can be analyzed qualitatively by aspirating air from the sample bottle or flask over sensitized paper, or through silica gel or an absorbing solution. The absorbent solution or gel can then be tested for the agent. Most of the chemical reactions used in the identification of chemical warfare agents can be very satisfactorily performed on silica gel without eluting the absorbed gas.

Many public health laboratories have sent members of their organizations to gas specialist courses given under the auspices of the Office of Civilian Defense at War Department civilian protection schools and at state gas specialist schools. These men have been given sufficient training to carry out any necessary analyses. In some states this gas specialist training is still being carried on, and any member of a public health laboratory who so desires can obtain some training under this state training program. Almost every large city of this country has appointed a Senior Gas Officer, and he has received training at one of these sources.

If the public health laboratory desires assistance in training its men, he will invariably be eager to coöperate with them in seeing that such training is provided.

To summarize briefly let me say that the Office of Civilian Defense and the civilian defense organizations of the local communities are relying upon the health departments to coöperate in the overall gas defense program by providing protection of the food and water supplies in case of emergencies caused by gas attacks.

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THE EDITOR RESIGNS

DR. HARRY STOLL MUSTARD has resigned as Editor of the JOURNAL. The Editorial Board makes this announcement with profound regret and with the free admission that the resignation, offered some months ago, was accepted only after it was abundantly clear that no argument or persuasion could prevail upon him to change his mind.

The Board believes it speaks for the JOURNAL's 10,000 readers when it expresses gratitude for the good fortune which retained Dr. Mustard's interest for as long as three years and two months. He is a busy man, a much sought-after man. Competition for his attention is always keen and never more so than in these war years. There must have been many occasions when matters of great weight and urgency wholly absorbed him, cruelly consuming mental and physical energy. A lesser person would have found intolerable the sustained demands of a monthly magazine and promptly sloughed them off. We know he has had long absences from the country, preceded and followed by close-packed weeks of attention to continuing commitments. The JOURNAL was only one of many. Yet every editorial, save two, which has appeared from January, 1941, through February, 1943, has come from his pen. Their thoughtfulness, their exact scientific focus, their penetration, their climactic punch-lines give evidence in every finished period of the painstaking care with which they were prepared. Time went into them, with time at a premium, and there was always a dead-line, and the writing of two and sometimes three editorials a month was by no means all the Editorship entailed. Dr. Mustard himself did nothing by proxy and he held others to the same punctilious ideal. One of his first official acts as Editor was to set down, in unequivocal terms, his convictions about book reviewing. "Books accepted for review by a person should be reviewed by that person," he wrote, "and not by an associate. If the reviewer finds that he cannot himself undertake the task, he should return the book to the editorial office." In that same letter occurs the famous line that many a recipient has chuckled over—"Reviewers should avoid cliches, jargon and ostentatious polysyllabics." It is a rule which scrupulously governs his own writing. He read every book review and graded it, to remind

himself later of the competence of the reviewer. He was conscientious in acknowledging and commenting upon manuscripts offered for his opinion. In short, he worked at the job, and somehow extended his days and himself to encompass it, and to do it superbly, as he has done with all the other things dependent upon him for guidance, direction, and completion.

But Dr. Mustard does not use press of work as a reason for giving up the Editorship. The idea would not cross his mind that he is more beset than the next man. His resignation is the application of a principle in which he deeply believes—that those who have enjoyed the spotlight for a time must make way for the young, the eager, the courageous, who are crowding the wings waiting their turn on the stage. He was entirely serious when he publicly proclaimed in the September JOURNAL:

> "The Editor has a feeling that old names and old faces, including his own, have too long occupied strategic positions on boards and committees. . . . If someone wants to campaign for a candidate under forty for the Governing Council, the Executive Board, or Editorship of the JOURNAL, we shall joyously back his man (unless he has served a prison term of more than a year) against the fifty-and-over field."

Lest there be misunderstanding, it is important to state at this point that Dr. Mustard was born in 1888.

In telling each other what constitutes a good editor, as they have reviewed qualifications of possible candidates to succeed him, the members of the Editorial Board have been finding out what constitutes Harry Mustard. Instantaneous presence of mind is one of the ingredients—of a kind that picks up a remark on adolescents, for example, at a meeting, pays a pretty compliment to the speaker and turns the episode into grist for the editorial mill. The ability to recognize a stuffy idea a mile away and take a fall out of its proponent with finality and without offense, is another. Still another is the capacity to reflect upon observations and experiences, some of them dull enough in the acquiring, no doubt, and to relate them brilliantly to a present situation. Versatility is a *sine qua non* in an Editor of a magazine covering as broad a field as public health. Mark the range of Dr. Mustard's subjects and note how completely at ease he is in each; he has discovered their "essences" in George Santayana's use of the word.

No, the qualities that Dr. Mustard possesses and that make a good Editor for the JOURNAL are rarely associated with the young. Granted that one or another of his young people could bring to it his writing skill, what time or opportunity has such a person had to synthesize a philosophy from memories and experiences?

The Editorial Board is unanimous in its feeling that age is not a criterion to be unduly emphasized in the selection of an editor, but that what it must search for is someone having the vigor and fearlessness of youth, the experience and judgment of age, and the ageless genius for expression which the retiring editor possesses.

ORGANIZED LABOR, A NEW ALLY FOR PUBLIC HEALTH

MANY a community organizer has wished that organized labor would rally to the support of his cause with some spontaneity. If he has tried to bring in the unions he has probably experienced a more or less polite brush-off. Employee health has been a sore spot with the unions ever since management became

insistent about it and tried to use these methods as means to get rid of workers it did not like. For a long time health has been identified with coercion and repression from above. It has seldom had the benefit of wholehearted coöperation from labor itself because the workers themselves wanted health.

The tide appears now to have turned. Perhaps as a result of wider understanding by the public of the aims of health, or perhaps as a result of the organization by the great unions of committees concerned with the National War Fund, there has arisen from labor itself an organized desire to share actively in health promotion and to bring to the worker himself the obvious benefits of good health. A recent conference at the invitation of the American Public Health Association between the staffs of the CIO and of the A F of L committees on the National War Fund and the executives of national health agencies has pointed up this new attitude. No longer is labor being coerced in this area. Labor is aggressively seeking means of writing intelligent health clauses into its contracts and is trying actively to coöperate in the planning and operation of community health services. Very likely the influence of the central labor bodies will soon be felt in local union circles. It is a new movement with tremendous potentials.

Recent attention has been drawn to the action of the California State Federation of Labor where examinations for syphilis have been endorsed and recommended to local unions. In this case the initiative came from a voluntary group, the California Social Hygiene Association, which found a responsive and intelligent labor leadership. From this beginning has come a request from labor itself for the inclusion of routine chest x-rays for the protection of the worker and his associates. This represents a fresh aspect of the search for unrecognized tuberculosis and one that will be welcome to those whose business it is to advocate these examinations. It would not be surprising for this demand to spread from union to union until it may tax the ability of the official and the voluntary agencies to supply service. It may forecast a useful peacetime disposition of the x-ray equipment now so widely used by the military forces. It suggests also a fruitful direction in which the unprecedented income from the Christmas Seal Sale may be used. Of course, such case finding is only the first step and the resulting demands for service from nursing and other staffs will not make simpler the present difficult job of the administrator. Even so, it may be the opening door to significant achievements, including practical use of the routine physical examination. What if the demand for this procedure should now come strongly from the people themselves?

All the foregoing gives point to the volume recently published under the auspices of the National Tuberculosis Association on labor relations. The time has come to do away with the amateurish activity which has been typical of health workers in the past and to make our contacts with the unions and with management in conformity with approved methods. This manual, under the title of "Tuberculosis: Labor and Management" is prepared for the workers engaged in local tuberculosis service who need a quick bird's-eye view of present industrial relations. Although focused on tuberculosis, it opens up in a practical way the matter of industrial relations, and can profitably be read by all public health workers, both official and voluntary.

"This brief manual is not a cook book. It contains no fool-proof recipes furnishing the final answer to all problems of human relations arising from the impact of a complex disease, tuberculosis, upon a complex structure, modern industry. Let it be said, once and for all, there is no royal road, no easy short

cut, which will relieve man from the often unpleasant task of thinking things through."

The leadership which the National Tuberculosis Association has shown in this field of industrial hygiene is indeed commendable. The success of this initial monograph in the series planned by the Association will make its readers receptive to the subsequent manuals on Mass Radiography in Industry and on Viewpoints of Management and Labor as they appear.

Credit Lines

So many requests have come to the Association for the address which Professor C.-E. A. Winslow of Yale University presented at the luncheon session held at the Annual Meeting of the American Public Health Association in New York, October 14, 1943, that it is reprinted herewith.

Greeting to Latin American Guests at the A.P.H.A. Meeting.

It is a very great pleasure to welcome the representatives of our sister republics to the south. Many of them have been our guests before, and have become dear and valued friends. Never before, however, have we had the advantage of such a galaxy of knowledge and vision in the field of public health. We look forward to a very great stimulus of our common activity in this country through what we shall learn from our distinguished visitors.

There are many ties that bind us together. North of the Rio Grande we recall what Washington and Lincoln have done in the timeless war against tyranny; but we are equally proud of the great liberators of the south, of Bolivar and Sucre, San Martin and O'Higgins. We may boast of Theobald Smith and Walter Reed; but we share your admiration for Oswaldo Cruz, for Chagas, for Finlay and Carrion. Cuba and the United States together fought yellow fever at Havana. Gorgas triumphed at Panama; and the recent triumphs of Barreto in Brazil in his victory over the gambiae mosquito have been glorious enough to justify pride in both hemispheres.

In the newer social fields of public health we in the United States can hardly claim to be comrades, but rather followers. Certain of your Latin American countries pioneered in the enforcement of the eight hour day, and in the provision of other forms of labor legislation long before we followed in the north. The social security system of Chile is a model for the world; and we look with admiration at such enterprises as the rural school health centers in Mexico.

It is a common thing for a representative of one nation to attempt to compliment another by an emphasis on their likeness. It is not, however, a real compliment to say "We feel you are just like one of us." The essence of true internationalism is not a sea of uniformity but a complementing by various peculiar national characteristics of a whole that is more than the sum of its parts. Aquinas said that "Beauty is unity in variety"; and this is the real keynote of international relations.

You have many things we do not have, many peculiar and special contributions to the stream of world civilization. For example, the culture of many Latin American countries represents our only link with the ancient civilizations of these continents before the coming of Columbus, a link with the great primitive people who developed the Maya calendar long before the Gregorian calendar was in existence, and with the Incas of Peru who planned and executed an extraordinary program of national social security.

Then too you bring into the comity of nations those traditions and those qualities which made the period of the Conquistadores so glorious. In 1620 my ancestors were huddled in primitive wooden huts on the shores of Plymouth, but nearly a hundred years before (in

1532) the first printing press on this continent had been set up in Mexico. My own university (Yale) is the third oldest in the United States, being founded in 1702; but a century and a half before this (in 1551) Mexico City and Lima had established their own great universities.

To the genius of Latin America we owe Orozco and Rivera, who stand in the very forefront of the world of art; Dario of Nicaragua in poetry, Rodo, the essayist of Uruguay, and Marti, the great philosopher of Cuba.

We think of ourselves in the United States as individualists, but the culture of Latin America has given a deeper and richer interpretation to the development of individual character and personality and to the evolution of all those qualities which make for the graciousness of life.

We face today the most critical challenge that has ever confronted the human race. The close of this war will demand almost superhuman efforts if our world is not to sink into the darkness of chaos. The hope is that by each free nation making its special contribution, displaying its special genius, all these contributions may be welded together into a great common effort to the end of the building of a world nearer to the heart's desire than any that has yet been known.

THE CARE OF COMMUNICABLE DISEASES IN GENERAL HOSPITALS

James E. Perkins, M.D., Director of the Division of Communicable Disease Control in the New York State Department of Health, Albany, has recently summarized the attitude of his department on the care of communicable diseases in general hospitals. The following is quoted from the January 17 issue of *Health News:*

In the early part of this century, there was a tendency on the part of municipalities to build special hospitals for the isolation of communicable diseases. These so-called "pest houses" were designed particularly for the care of smallpox cases but were intended for the isolation of other acute infectious diseases as well. At that time, it was thought feasible to control communicable diseases in communities through isolation of recognized cases since it was felt that if all patients were isolated until they were no longer infectious, the spread of these diseases would cease. However, upon further investigation from a bacteriological standpoint, it was learned that in many communicable diseases, symptomless carriers and atypical cases which ordinarily would not be recognized as infectious are frequently more important in the spread of the disease in the community than the typical cases which can be detected. The routine hospitalization of acute communicable diseases for the sole purpose of limiting spread of the infection in the community, therefore, obviously would not accomplish this objective.

At present, hospitalization of contagious diseases ordinarily is recommended only in those cases requiring care from the standpoint of the welfare of the patient himself and which can be given only in a hospital and not at home. In rare circumstances, it may still be necessary to hospitalize patients from the standpoint of the protection of the community as, for example, in the case of a communicable disease discovered in a transient or occurring in a home in which for certain reasons proper isolation is impossible.

Concomitant with the development of our bacteriological knowledge of communicable diseases, techniques have been devised to permit the safe isolation of cases of communicable diseases in general hospitals. These procedures vary with the disease: some patients can be cared for without danger on a ward; others must be confined to a private room. However, there is essentially no communicable disease which can not be cared for safely in a private room on a floor on which there are other patients with noncommunicable diseases, providing certain techniques are practiced rigidly by the attendants. It has become increasingly clear that the training and skill of the attendants are much more important in controlling the spread of infection than the physical equipment provided.

In the opinion of the New York State Department of Health, therefore, separate buildings for the sole care of communicable diseases are not essential. In larger municipalities it may be more convenient for a hospital to have a separate building for this purpose, but this is a matter of convenience

and not necessity. In smaller places in which such a building would be vacant a large part of the time, an unnecessary expense to the community would be entailed.

Every hospital is dealing with communicable diseases whether or not it recognizes that fact. Because of the prevalence of carriers and atypical cases among the general population, it is inevitable that such carriers and cases will be admitted from time to time to a hospital even though the infection is not detected at the time of admission. The routine procedures followed in these hospitals, therefore, with regard to the hygienic practices of the attendants, the handling of food and dishes, and the use of various types of equipment (such as thermometers, enema apparatus, etc.) should be such that there is no likelihood of the transfer of secretions or excretions from one patient to another. If such techniques are not followed, sooner or later an outbreak is bound to occur through the introduction of pathogenic microörganisms by a carrier or atypical case.

FOOD HANDLERS SCHOOLS

The Food Division of the Memphis and Shelby County Health Department, Memphis, Tenn., organized a Food Handlers School which ran for 8 days recently under the joint sponsorship of the Memphis Restaurant Association and the Health Committee of the Memphis Chamber of Commerce. The School was conducted by personnel from the U. S. Public Health Service, assisted by the local city and county health department.

According to Marvin F. Carter, the Director of Health Education in the Memphis and Shelby County Health Department, the 12 sessions, representing 3 lessons, brought out a total attendance of 4,433 persons, representing fully 25 per cent of all food handlers in Memphis. According to Mr. Carter, there was excellent coöperation from the Restaurant Association, the Chamber of Commerce, the newspapers, and radio stations. Classes consisted of talks, demonstrations, motion pictures on bacteriology, food poisoning, communicable diseases, proper washing of dishes and glassware, and other means such as single service containers to take care of rush hours when it is difficult to get dishes and glassware properly washed. Coöperating on the faculty were Major Male, Dr. Butterworth, and H. C. Taylor from the New Orleans office of the U. S. Public Health Service.

A certificate testifying to the attendance from a restaurant was issued by the county and city health department when more than 75 per cent of the food handling staff completed the course. In addition, small cards certifying to an individual's attendance were distributed. The percentage of persons in attendance marks this as a unique project. According to Homer N. Calver of the Public Health Committee of the Cup and Container Institute, similar schools are planned and under way in a number of cities.

RELATIONSHIP BETWEEN THE MEDICAL PROFESSION AND GOVERNMENT

In an address before the Westchester County Medical Society, White Plains, N. Y., January 18, 1944, Dr. Edward S. Rogers, Assistant Commissioner for Medical Administration, Bureau of Pneumonia Control, New York State Department of Health, Albany, N. Y., expressed a philosophy with regard to the practising physician, society, and government, which is worth pondering. This section of his address is printed by permission of the *Bulletin* of the Westchester County Medical Society. The full text is carried in the *Bulletin* for February.

I should like to start with two premises upon which, it seems to me, there can be no disagreement: First, that we, as a profession, are committed to the cause of progress, progress in the science of medicine and in the problem of its application to society. Second, that we are equally committed to a program of realistic growth in the belief that the two extremes, that of reactionism born of fear of change and of revolution born of avarice, are costly and undesirable in comparison to rational, well conceived and soundly guided growth by evolution.

If you will measure the present times by these standards, I believe you will agree with me that the fact of progress is inevitable, but that the method of progress is still a matter of choice. I am firmly of the conviction that regimentation is unnecessary and equally convinced that reactionism is pure folly because it cannot and should not overcome the stronger current of social growth, but by deviating attention from the realistic approach will only serve to leave the stronger current without effective control.

At this point, therefore, I should like to add a third premise—namely, that since progress and change in the application of medical care to society are not only inevitable but also desirable, this fact should be recognized by the profession. To this end, the medical profession should select or create, and give its support to, a class of physicians who are competent to devise and guide such growth. I further believe that it is a specialty in its own right, demanding men of particular qualification and background and that the specialty may well be called administrative medicine.

Do not confuse this with leadership. Medical leadership is the prerogative of no group or specialty, but belongs to those who rise in any branch of the profession to deserve it; but leadership is not synonomous with administration and organization in a functional sense; and these are what I am talking about.

Administrative medicine, in the sense that I am using the term, embraces several broad areas of activity. The medical administrator's first responsibility is the facilitation of the application of medical science to society. To do this, he must have a broad enough acquaintance with medical science to evaluate what is good and what is not, and to whom to turn for technical advice; and he must also have a broad enough knowledge of society to know what its problems are and to know the good from the bad in the manner of answering these problems.

He must be able to recognize the interests of the medical profession, not only in serving society, but also in self-preservation—an honorable prerogative of any worthy group. And he must also be able to understand and evaluate the interests of society. Where these interests coincide, he should bring them together. Where they are in apparent conflict, he should reconcile them. Where they are in absolute conflict, he should guide them through periods of adjustment on both sides, avoiding injustices, and above all having wit enough not to destroy the basic rights of any group.

What good, for example would come out of the regulation of medicine under some superimposed and theoretical system if, by so doing, the profession were to be made unattractive to men of the best professional calibre? Rather better, it seems to me, would be the process of enabling the medical profession to regulate itself within the broad concepts of our social growth.

The medical administrator must therefore know his profession and the leaders in it, if he is to serve it well.

As I have said, responsibility in leadership should not be confused with responsibility for operation. Our Congress and the President may be said to be in positions of leadership with respect to the war, but they do not, or should not, presume to direct the technical phases of our prosecution of the war. They should leave that to those who are equipped and in the position for such direct responsibility.

Similarly, I believe that medicine, through the voice of its organized bodies and outstanding leaders, should determine or pass upon the broad objectives of its growth, but the technical, complex and delicate task of actually directing such growth is not a part-time task for an untrained man. Nor does the structure of organized medicine provide the complete machinery for such administration.

Let us take a look at government, not perhaps as we may see it now, but rather as it should be. It seems to me that government should be the agency of the people whereby they provide themselves with the machinery for self-regulation in the best interests of all. The pressure groups that menace us today should have no power to go beyond making their just views and needs known.

If we will accept this definition of government, we may next explore the application of it to certain broad segments of society. The medical profession is, by its very nature, a service group to society and, as such, cannot escape being an important element in any system of government that society may conceive. Here, however, comes a fine point that is perhaps the crux of the matter. It is entirely sound for society to make certain demands upon the medical profession and to make its needs known. But, as a mass, society knows nothing about medicine, nor does it possess any skills whatsoever beyond those of the individuals and groups of which it is comprised. As a mass, it has neither the knowledge nor other means whereby to feed itself, or to minister to its own ailments or to direct its own growth with intelligence.

Yet, in a democracy, society possesses great

power and its wise direction becomes imperative. Since authority for such direction must be vested in individuals, there is always the danger that these individuals will bring to their office, or acquire in office, views that are conditioned or otherwise prejudiced with respect to the groups that actually constitute society.

It would seem to be desirable procedure for society, when it feels the need of medical care, to call the doctor. But, equally, it would seem to be desirable for the doctor, when he is called, to respond. Thus, there is a twofold responsibility of which, in our recent history at least, I am not too sure that either society or the doctor have met their share.

Clearly, this problem is one which both society and the medical profession might well resolve through the use of properly operating government. Yet, to do this, the medical profession first must recognize the specialty of administrative medicine and it should select and place its own trained and qualified men in the offices of government that will operate in its own control. And in turn society, in the broad sense that I am using the term, must acknowledge the importance and the propriety of such an arrangement.

Bear in mind, though, that I am not recommending the uncontrolled self-determination by the medical profession of the rôle of the medical profession as a part of society. Rather, I am recommending the integrated control of medical care through a system whereby the medical profession will be the principal and primary source for the origin and development of such measures as may be indicated. Coördination and adjustment of what the medical profession recommends with the needs and recommendations of other groups must be accomplished also within the structure of government, at a higher level.

Were the medical profession to pursue the policy of complete self-determination, it would achieve all of the faults of what I have previously referred to as a pressure group, where selfish interests are likely to dominate. To justify such a policy in relation to any single profession or occupational group would certainly imply an equal right for all other professions or occupational groups. It would be tantamount to claiming that the farmer should determine his own place in society without any integration or control, or that labor should do likewise—obviously impossible procedures if chaos is to be avoided.

These views I urge upon you as being more than idle fancy upon my part. I believe that they strike close to the heart of the problem that now acutely confronts us. Specifically, the starting point is this: We need to think of the structure of things for the time we all await when the war is over. We need to have our plane for coördinated action well developed. We need not only to have the men to lead us, but also the men to carry on the complex job of designing and building our medical future and we need to have those men in positions of responsibility where they can work most effectively.

The medical profession frowns upon certain forms of practice as unethical, yet licensed physicians continue to so practice. The medical profession frowns upon "government intervention," but such frowning is not very likely to stop the government from meeting a popular demand for a medical care program. When the government starts such a program, who is going to devise it?

When the government wants physicians it will find them. I hope that they will be the right men, that they will be part of, and understand the practising medical profession; that they will be realists and not theorists in their approach. I hope also that the medical profession, by a forward looking attitude, will see to it that this becomes increasingly possible and that the physicians selecting or selected for the field of administrative medicine are chosen wisely and given the opportunities to work with, and the support of, the profession that the seriousness of their undertaking deserves.

. . . .

To summarize: It seems clear that the time has come when the medical profession must move more realistically toward the construction of its place in a rapidly changing social structure. To do this, it should recognize the place and need for trained physicians in the administration of its own growth, and it should develop and utilize the forces of government in the belief that good government should serve the people.

LABOR AND HEALTH AND WELFARE ACTIVITIES

The Community Chests and Councils, Inc., 155 East 44th Street, New York 17, N. Y., has done a commendable job in indicating by implication in the title of a recent study that labor may be interested in portions of the programs of health and welfare agencies other than their financing. Replies from 105 cities to an invitation issued by Community Chests and Councils to its

member councils of social agencies and community chests to tell the story of their relations with labor, excluding fund raising matters, are summarized in a pamphlet entitled "Labor Participation in Organized Health and Welfare Activities Other Than Fund Raising." Price *25 cents*. The record of the cities thus far, as reported, will hardly occasion dancing in the streets, but even to discuss the mechanics of securing labor coöperation is an encouraging sign. An interesting comment in the summary is to the effect that letters from several cities expressed the opinion that there was current "over-emphasis" on the whole question of labor participation—a conclusion probably warranted in some communities and wholly unwarranted in others where efforts in this direction have been feeble or not made at all.

THE EVALUATION SCHEDULE AND POST-WAR PLANNING

At present writing it is anticipated that several hundred counties and cities in the United States and Canada will submit *Evaluation Schedules* giving a record of practices and facilities for the protection of public health for the year 1943. The *Schedules* are to be forwarded to the American Public Health Association office by March 1. Some *Schedules* will be sent directly, others through the state department of health.

In these hopeful times with increasing confidence in the approaching victory of the combined forces of the United Nations on the world's battlefields, eyes are being focused already on planning for the future. A ready-made plan that can serve as the basis for charting the future in the field of public health is to be found in the pages of the *Evaluation Schedule* and the chart which is returned to the community following the grading of the *Schedule*. On this chart is visualized clearly the strong points in a local health program as well as the weaknesses and inadequacies. No better start can be made toward public health advancement than through thorough study and discussion of the "red" marks on the grading chart. Here are the clues to the unmet needs.

In some communities there will be shortcomings to be strengthened in the control of syphilis. In others lack of beds for tuberculosis cases is the major need. But whatever or wherever the weak spot, the picture is there portrayed for all to see.

The first step in planning ahead is a knowledge of what is today. The inventory process made possible by community use of the *Evaluation Schedule* provides the makings of the necessary topographical map on which to plot the roads and the buildings and the practices which will lead to better health for more people in the immediate future.

WHAT ARE HEALTH DEPARTMENTS DOING ABOUT ACCIDENT PREVENTION?

This question is partially answered by the Subcommittee on Accident Prevention of the American Public Health Association, Donald B. Armstrong, M.D., *Chairman*, in *The Spotlight* for January.

The committee calls attention to activities in New York, Minnesota, New Jersey, Illinois, and Kansas, which have emerged thus far in the review it is now conducting of state patterns of organized home and farm safety programs. The full report of the committee will be awaited with interest.

It should be mentioned that *The Spotlight* is an informal newspaper published in the interests of the National Health Honor Roll by the Committee on Administrative Practice. Its circulation is limited to health officers, but copies of the January issue may be obtained on request to the Association at 1790 Broadway, New York 19, N. Y.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

The **Principles and Practice of Industrial Medicine**—*Edited by Fred J. Wampler, M.D. Baltimore: Williams & Wilkins,* 1943. 555 pp. Price, $6.00.

This interesting and valuable contribution covers the important aspects of the whole field of industrial medicine in 33 chapters prepared by somewhat less than this number of specialists in the field.

Beginning with a very brief history of the subject, the volume includes such subjects as Appraisal and Control of Industrial Health Hazards, Accidents, the Medical Department and Medical and Nursing Services, the Industrial Health Program of the American Medical Association, the Effects of Temperature and Abnormal Pressure, Lighting and Vision, Fatigue, Toxic Compounds and the Medical Control of Such Industrial Exposures, Electricity, Occupational Diseases of the Skin and of the Lungs, Venereal Diseases and Their Control, Nutrition, Shock and Burns, Compensation, Rehabilitation, and Women in Industry.

It must be obvious to the reader that a volume presenting such an over-all picture of the problem of industrial medicine should be very valuable and that is true in the present case; in fact, this book is to be highly recommended to those who desire just such an over-all statement of the various aspects of the now large field of industrial medicine.

When one examines the content of some sections of the book in detail, it becomes apparent that certain of the authors must lack close industrial contact with the field about which they have written. For example, the section on "The Toxicity of Certain Organic Solvents in Industry" deals with relatively few of the important solvents, and omits much information of basic importance.

One chapter is devoted to the pneumonoconioses and of this all but one and one-half pages are devoted to silicosis. The remaining page and a half are devoted to asbestosis, siderosis, and anthracosis. This is hardly a sufficient treatment of a subject very important to the industrial physician. Occupational poisonings of various kinds are presented by eight different authors in seven separate sections of the book. Under these conditions, it is difficult to present a subject without some repetition and certain important omissions.

These criticisms must not be given too much weight, however, for the book as a whole is a valuable compilation for the industrial physician and other workers interested in this important branch of public health. The format, typography, figures and photographs are of a high standard.

LEONARD GREENBURG

The Nature and Treatment of Mental Disorders—*By Dom Thomas Verner Moore, O.S.B., Ph.D., M.D. New York: Grune & Stratton,* 1943. 312 pp. Price, $4.00.

This book is presented by the author to clarify the field of psychopathology for physicians, psychiatric social workers, and psychiatric nurses. It is divided into four parts dealing with "Psychopathology, Therapy of Psychological Analysis, Miscellaneous Techniques and Organic Emotional Disorders." At the end is an appendix giving "Classification and Definition of the Clinical Entities of Psychiatry."

The latter is based on the *Statistical Manual for the Use of Hospitals for Mental Diseases* published for the National Committee for Mental Hygiene, 1942, and edited by Dr. Clarence O. Cheney. In this book Father Moore has made a worthy effort to summarize a vast field of psychological and psychiatric theory, and has accompanied this summary with case material illustrating his use of theories in practical work with individual cases. The author is frank to utilize what he can of theories that these fields present. The reader is at liberty to go further if he wishes, but he is not encouraged toward a goal of therapy that is more than he can take in the face of his common sense and individual experience.

ESTHER L. RICHARDS

The Nutrition Front: *Report of the New York State Joint Legislative Committee on Nutrition; Legislative Document No. 64,* 1943. 286 pp.

There is much information on current phases of nutrition in this report, and the committee responsible for it has done a good job in stirring up interest in improved nutrition. The recommendations of the committee regarding support of nutrition, school lunches, etc., are excellent, and it is hoped they will be carried out. Unfortunately, the report is cluttered up with much misinformation in the form of "opinions" by "authorities" on subjects such as: "hidden hunger"; draftees rejected because of nutritional deficiencies; vitamin supplements to workers ("In one plant in particular I saw it (vitamin supplements) increase in six weeks the amount of production, the reduction of spoilage and accidents, the reduction of absenteeism, and the increase of the weekly wage; results . . . statistically significant"); "vitamin C . . . assists in the resistance of the body to nitro-amido poisonings . . . it stimulates the circulation of the blood . . . we personally have never run any controls for observation in regard to the benefits from these vitamin C tablets." How true! This report is recommended only to those who can distinguish fact from fancy, though it will be of interest to all.

FREDRICK J. STARE

Careers in Public Health—*By Adrian G. Gould, M.D. Chicago: Science Research Associates* (1700 Prairie Avenue), 1943. 49 pp. Price, $.60.

Those who are concerned with the preparation of young persons for careers in the field of public health will be glad to know that a serious attempt has been made through this publication to cover the subject from the standpoint of vocational guidance adapted for high school and college students. Most vocational and professional areas are better documented than public health has been, and the author is to be commended for this effort. It is not easy to write a comprehensive monograph which will orient a young person on the historical development of careers in public health and which will distribute the emphasis properly. There will be minor criticisms as to details in this presentation, but for the intended purpose of giving a young person an over-all view of the field it is to be commended. The manuscript is well linked with the reports available from the Committee on Professional Education of the A.P.H.A. and with similar reports from other professional societies. REGINALD M. ATWATER

Municipal and Rural Sanitation—*By Victor M. Ehlers, C.E., and Ernest W. Steel, C.E. (3rd ed.) New York: McGraw-Hill,* 1943. 449 pp. Price, $4.00.

This book is a condensed reference work on the various aspects of environmental sanitation as applied to

municipal and rural areas. It is a useful volume for the sanitarian and others engaged in the application of public health preventive measures to civilian life.

This 3rd edition is marked by substantial additions and revisions in keeping with current practice in the sanitation field. The discussion on pasteurization in the chapter on milk sanitation has been expanded to include modern methods and controls. The chapter on food sanitation has been revised to give more adequate coverage to the inspection of food handling establishments. More recent and more complete information is given on the bactericidal treatment of utensils and equipment. Additional information is furnished on the classification of waters in which shellfish are grown. A description of the modern practice of sanitary land filling for garbage and refuse disposal has been added to the chapter on that subject. Additional data on incinerator design and operation are also furnished.

Recognition is taken of the rapid developments in the field of commercial air conditioning by the addition of this subject to the discussion on ventilation. Other topics covered in this book include insect and rodent control, plumbing, lighting, housing, industrial hygiene, the sanitation of schools and swimming pools, and miscellaneous other sanitary controls involved in the transmission or prevention of communicable disease and the promotion of social health and well-being.

It is unfortunate that the chapter on the general characteristics of water does not include the Public Health Service drinking water standards adopted in 1942. In the discussion on fluorine in water no cognizance is taken of the possibilities of the reduction in dental caries by the maintenance of a small fluorine content in the public water supplies. In the chapter on water-carried sewage disposal there may well be a difference of opinion in some sections of the country as to whether cesspools customarily should be "dug deep enough to penetrate into ground water." It is believed that the discussion of cesspools could, to advantage, be amplified.

The book has been interspersed with more usable figures and data than previous editions. It is recommended as an excellent text for the student of sanitation and the practical worker in the field. ALBERT H. STEVENSON

Relaxation—*By Josephine L. Rathbone. New York: Bureau of Publications, Teachers College, Columbia University,* 1943. 157 pp. Price, $1.75.

Miss Rathbone has written a popular treatise on the causes of tension and some of the way for relieving it. A secondary purpose has been to rally education to the assistance of medicine, for the author emphasizes that no one type of remedy will remove all of the causes of tension.

The first part of the book is devoted to a discussion of the relation of fatigue to tension, and of the physical and psychological causes of fatigue and their symptoms. The presentation of certain topics is worth particular mention. The integrated nature of the human organism, the appraising of health accounts, the description of causes of chronic fatigue, the value of goals which men set for themselves are topics which have been treated clearly for the popular reader. Certain discussions of the physiology of fatigue are likely to mean very little to most persons. Description of the chemcial changes in a muscle during contraction is too technical and serves little purpose in this book.

Physical and psychological treatments for chronic fatigue, hence for the relief of tensions, are described in the second

half of the book. Full reference is made to the technic of producing relaxation as used by Dr. Edmund Jacobson. One may experience difficulty occasionally in following the discussion on treatments because of the author's excursions too deeply into marginal areas. The recommendations for attitudes towards play in adult life are sound.

One may conclude that relief of chronic fatigue may result from securing adequate rest and avoiding excessive activity of any type, and in many cases doing suitable muscular exercise. It is emphasized that these do not supplant the need for medical advice and service where such are indicated.

The book, especially the first part, is very readable and should prove useful to persons who are interested in the causes of tensions and some of the ways for relieving them.

GLENN W. HOWARD

Holt's Care and Feeding of Children—*By L. Emmett Holt (16th ed.) New York: Appleton-Century,* 1943. 321 pp. Price, $2.00.

During the early days of the Babies Hospital in New York, according to the interesting biography of Dr. L. Emmett Holt by his son, Dr. L. Emmett Holt, Jr., and R. L. Duffus, one development of considerable novelty was the organization of a short training course for nursery-maids. Dr. Holt, the hospital's attending physician, took charge of this teaching and for one of his teaching materials prepared a "Catechism for Nurses" to cover the commonly met details of clothing, bathing, feeding, etc. The "Catechism," issued by the hospital in the form of a 4 page pamphlet containing 23 questions and answers, was taken into the community by the nurses as they graduated and soon became generally known. Demand for reprints reached such proportions that general publication became inevitable and the pamphlet was expanded to a booklet of 66 pages, published under its present title in 1894. Seventy-five reprintings and translations into Spanish, Russian, and Chinese testify to the early need and continuing popularity of this book.

The present edition, the 16th, has been revised and enlarged by Dr. L. Emmett Holt, Jr., Associate Professor of Pediatrics, the Johns Hopkins School of Medicine. The book retains its question and answer form and touches on most of the subjects likely to interest those caring for children. In general, the advice given is simple and practical, although there are curious lapses. Not many mothers will want to take time to iron diapers nor are many likely to give up the advantages of tie shirts for those which "button down the front."

The book's most striking deviation from present-day trends, however, is in the field of habit training and guidance in general. Although some liberalization is evident, there are still heavy overtones of the rigidity which is now fortunately on the wane in most pediatric practice.

In an era which has witnessed great expansion in available medical services for well and sick infants, one wonders at the necessity for including quite so much material on diagnosis and treatment.

MYRON E. WEGMAN

Principles and Practice of Rehabilitation—*By John Eisele Davis, Sc.D. New York: Barnes,* 1943. 211 pp. Price, $3.00.

The purpose of this book is to present the principles and practices of rehabilitation which have been found most successful with patients having neurotic and psychotic conditions. The author points out the need for a program of rehabilitation for the increasing number of individuals who are being sent to mental hospitals. He constructs the edifice of rehabilitation by using as building blocks the individual's wants,

interests, needs, and capacity. It is a usable psychology of practical rehabilitation for it presents the syndrome of each mental disease and then outlines the types of recreational and occupational therapy most suitable to meet the needs of each condition. An important principle which is stressed is that of distinguishing "between those activities that do something to the patient and those activities that cause the patient to do something himself, for himself."

This book is highly recommended to physical, occupational and recreational therapists, educators, psychologists, and psychiatrists interested in the rehabilitation of those emotionally disturbed.

GEORGE G. DEAVER

Food Poisoning—Its Nature, History and Causation. Measures for Its Prevention and Control—*By Elliot B. Dewberry. Foreword by Gerald R. Leighton, M.D. London: Leonard Hill Limited (17 Stratford Place, W. 1). Ill. with 30 figs.*, 1943. 186 pp. Price, $3.75.

This compact volume is a valuable contribution to the subject of food poisoning. It is written in three parts, the first dealing with bacterial food poisoning; the second, with poisons (metallic, poisonous plants, poisonous fish and shellfish) and with food allergy. The third part discusses botulism. Two appendices deal respectively with the contamination and decontamination of foods by poisonous gases in war, and with the steps to be taken by medical officers in rural areas in suspected cases of food poisoning.

The section on war gases is timely and includes a two page table showing the grouping of the poisons as "irritant," "blistering," etc., the name of the gases, their effect on various foods, and the decontamination treatment of these affected foods. The first and third parts are introduced by a ten page "historical" sketch, while tucked away in the text are many historical briefs or citations of illustrative incidents. These will interest all participants in public health educational endeavors.

We have been favored in 1943 with contemporaneous British and American publications titled "Food Poisoning." The reading of both books emphasizes the importance placed on staphylococcus food poisoning in the United States as compared to the light consideration of this subject in the Dewberry text. In the United States publication, 32 pages are devoted to a separate chapter captioned "Staphylococcus Food Poisoning." In the Dewberry text, only 3 pages are allotted to this subject. Two of these 3 pages are devoted to a discussion of nine cases which occurred in Leicester during 1942. This outbreak "was at once traced" to an American food product.

Dewberry discusses Salmonella, botulism, poisonous plants, poisonous fish, poisonous shellfish and poisonous metals in a detailed and interesting manner.

Chapter VII is devoted to the prevention and control of bacterial food poisoning and includes a sub-heading entitled "Paper Containers for Milk." This cites the New York State Agricultural Experiment Station recommendations concerning the production and handling of these to prevent "infection of milk."

Chapter XIX pertains to the prevention of botulism. In this section, the author emphasizes the need for adequate equipment to obtain the high temperatures such as are produced in steam pressure cookers. He closes the section on home canning and preservation by quoting a 1934 communication from Dr. K. F. Meyer: "If there is no pressure cooker available in home preserving of non-acid foods it is safer to substitute dehydration, salting or pickling for canning."

A short chapter on food allergy is of

interest. Many pertinent references appear supplemental to the chapters. These are combined into an "Author Index" preceding the "Subject Index."

The casual consideration of Staphylococci weakens this book as a complete reference text on this subject. However, the book does contain so much that is of interest and of value as to occasion the opinion that it is a desirable complementary adjunct to other texts on food poisoning.

R. V. STONE

Fundamentals of Nutrition and Dietetics: A Workbook—*By Alberta Dent. (2nd ed.) New York: Wiley,* 1943. 209 pp. Price, $2.00.

Except for the words "a workbook," the title of this book is misleading. It is simply an "exercise book" to accompany an elementary course in home economic nutrition. If such a book is desired, this one will probably serve as well as any other except that it is printed in type that is too small for comfortable reading. There is nothing unusual or new about this book, and the reviewer is of the opinion that it is entirely too much on the side of "spoon feeding" for students of college grade.

FREDRICK J. STARE

Hospital Discharge Study—Hospitalized Illness in New York City *(Vol. II)—By Neva R. Deardorff, Ph.D., and Marta Fraenkel, M.D. New York: Welfare Council of New York City,* 1943. 349 pp. (Offset.) Price, $1.00.

The second volume of this study analyzing the hospital care of more than half a million New Yorkers in 1933 is now completed. The first volume dealt with the patients, their ages, residence, diseases, conditions on discharge. In the second volume the emphasis is upon medical conditions and hospital care—the types and auspices of hospitals and the types of diseases cared for in them.

The third volume, still in preparation, will summarize the experience of the project in suggesting practicable methods of hospital morbidity reporting as a routine procedure. The three volumes with their separate emphases lay the groundwork for a meaningful system of hospital morbidity reporting. The entire study is a monument to the imagination and tenacity of purpose of those who fashioned a significant addition to social accounting out of the otherwise unemployed talent salvaged and developed by the Work Projects Administration.

MARTHA LUGINBUHL

Tuberculosis in the United States—Graphic Presentation, Vol. I—*New York: Medical Research Committee, National Tuberculosis Association,* 1943.

This publication presents in tabular and graphic form information concerning tuberculosis mortality for the United States as a whole, for each state, and for certain geographic divisions. The 3 year periods covered are 1919–1921, 1929–1931, and 1939–1941. The information is presented by age, sex, and color, three of the main factors associated with variations in the tuberculosis mortality. The tables and graphs are well arranged, clearly printed, and therefore easy to follow and use. The volume is to be highly recommended as a source of information. The wealth of material contained does not lend itself to review and can only be adequately appreciated by consulting the publication itself.

GAIUS E. HARMON

Elements of Medical Mycology—*By Jacob H. Swartz, M.D. New York: Grune & Stratton,* 1943. 179 pp. Price, $4.50.

Anyone who has struggled with the identification of fungi will at once appreciate the practical approach of the

author and the excellent classification methods made available for diagnostic purposes. The illustrations and charts are commendable. The author, who is Assistant Professor of Dermatology at the Harvard Medical School, has balanced the diagnostic and treatment features in a manner which utilizes his own first hand experience and should be valuable to students and others seeking a comprehensive grasp of medical mycology. The volume is well documented from the literature from this country and abroad. Given such contributions as this work, the field of mycology in time may become as well understood as medical bacteriology.

REGINALD M. ATWATER

The **Science of Nutrition**—*By Henry C. Sherman. New York: Columbia University Press*, 1943. 253 pp. Price, $2.75.

The Science of Nutrition is the latest of a series of distinguished monographs by Professor Sherman.

The author says in his preface that he has sought to summarize and evaluate "the present status of nutrition in as concise and impersonal a manner as possible." He has succeeded admirably in his purpose. This short book is unusual in giving both a careful presentation of the accepted facts of nutrition, and an extensive discussion of the place of the science of nutrition in our society. About half of the chapters are devoted to the subject matter of nutrition, with considerable emphasis on the historical development and changing attitudes in the field of nutrition. "Technical terms are reduced to a minimum."

The second half of the book is largely spent in a discussion of the nutritional status of the nation, what the government can reasonably do to improve nutrition in the United States, and what rewards are likely to result from such improvement. The author argues most seriously and convincingly that only heredity and bacterial diseases are as important factors as nutrition in deciding the health, vigor, and longevity of man.

To document his conclusions that great benefits will be derived from an improvement in the nutrition of the nation, Professor Sherman draws extensively on experiments carried out with rats in his laboratory at Columbia University. He presents convincing evidence that a wide gap exists between the diet that is just adequate to prevent signs of frank deficiency and one that produces optimum nutrition.

On the whole this book lies somewhere between the nutrition textbook and the popularized account of the more superficial aspects of nutrition. By filling the gap between these two extremes it should attract readers from all branches of biology who are interested in recent advances in nutrition.

OLIVER H. LOWRY

BOOKS RECEIVED

HEALTH AND HYGIENE. By Lloyd Ackerman. Lancaster: Jacques Cattell Press, 1943. 895 pp. Price, $5.00.

A GUIDE TO PRACTICAL NUTRITION. By Michael G. Wohl, M.D., and John H. Willard, M. D. Philadelphia: Philadelphia County Medical Society, 1943. 98 pp.

APPLIED DIETETICS. The Planning and Teaching of Normal and Therapeutic Diets. 2nd ed. By Frances Stern. Baltimore: Williams & Wilkins, 1943. 265 pp. Price, $4.00.

THIS MILK BUSINESS. A Study from 1895 to 1943. By Arthur Guy Enock. London: H. K. Lewis & Co., Ltd., 1943. 243 pp. Price, $4.75.

THE MARCH OF MEDICINE. Number VIII of the New York Academy of Medicine Lectures to the Laity. New York: Columbia University Press, 1943. 151 pp. Price, $2.00.

THE CURRICULUM IN HEALTH AND PHYSICAL EDUCATION. By Leslie W. Irwin. St. Louis: Mosby, 1944. 391 pp. Price, $3.50.

CHILDBIRTH WITHOUT FEAR. By Grantly Dick Read. New York: Harper, 1944. 259 pp. Price, $2.75.

ON THE INFLUENCE OF TRADES, PROFESSIONS, AND OCCUPATIONS IN THE UNITED STATES, IN THE PRODUCTION OF DISEASE. By Benjamin W. McCready. Baltimore: Johns Hopkins Press, 1943. 127 pp. Price, $1.75.

HEALTH FOR THE HAVING. By Dr. William R. P. Emerson. New York: Macmillan, 1944. 146 pp. Price, $1.75.

FUNDAMENTALS OF PERSONAL HYGIENE. By Walter W. Krueger. 4th ed. Philadelphia: Saunders, 1944. 315 pp. Price, $1.75.

TRENDS IN NURSING HISTORY. By Elizabeth Marion Jamieson and Mary Sewall. 2nd ed. illus. Philadelphia: Saunders, 1944. 651 pp. Price, $3.00.

EDUCATION AND HEALTH OF THE PARTIALLY SEEING CHILD. By Winifred Hathaway. New York: Columbia University Press, 1943. 216 pp. Price, $2.50.

PHYSICAL FITNESS FOR GIRLS. By Rosalind Cassidy and Hilda Clute Kozman. New York: Barnes, 1943. 223 pp. Price, $2.00.

FITNESS FIRST. By Hilda Clute Kozman and Rosalind Cassidy. New York: Barnes, 1943. 32 pp. Price, $.60.

PHYSICAL FITNESS FOR BOYS. A Manual for the Instructor of the Service Program. By Ben Miller, Karl W. Bookwalter and George E. Schlafer. New York: Barnes, 1943. 457 pp. Price, $3.00.

WAR AND CHILDREN. A Message to American Parents. By Anna Freud and Dorothy T. Burlingham. New York: International University Press, 1943. 191 pp. Price, $2.00.

ENCYCLOPEDIA OF CHILD GUIDANCE. Edited by Ralph B. Winn. New York: Philosophical Library, 1943. 456 pp. Price, $7.50.

THE SEVEN MYTHS OF HOUSING. By Nathan Straus. New York: Knopf, 1944. 314 pp. Price, $2.75.

DENTAL FACILITIES IN PHILADELPHIA. A Survey of Sixty Dental Clinics. Philadelphia: Health Division, Council of Social Agencies, 1943. 46 pp. Price, $.10.

MAURICE ARTHUS' PHILOSOPHY OF SCIENTIFIC INVESTIGATION. Translated from the French, with an Introduction by Henry E. Sigerist. Baltimore: Johns Hopkins Press, 1943. 26 pp. Price, $.75.

VITAL STATISTICS OF THE UNITED STATES. Supplement 1939–1940, Part III. Washington: U. S. Department of Commerce, Bureau of the Census, 1943. 581 pp. Price, $1.75.

PRELIMINARY DRAFT OF A GUIDE TO THE EVALUATION SCHEDULE. By George T. Palmer for the Subcommittee on Manual of Practice and Appraisal of Local Health Work of the Committee on Administrative Practice, American Public Health Association, 1944. 48 pp.

BIRTHS, INFANT MORTALITY, MATERNAL MORTALITY. Graphic Presentation, 1940. Washington: U. S. Department of Labor, Children's Bureau, 1943. 34 pp. Price, $1.00.

SOCIAL WORK AT ITS FRONTIERS. New York: American Association of Social Workers, 1943. Series of Reprints from *The Compass*.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

The Operator Will Recover—A hair-raising story of gasoline fumes from a flooded carburetor filling the well of a sewage pump and when set off by the spark from a control switch, blowing the pump house to bits, including a heavy concrete flooring. You'll have a more wholesome respect for present-day rationed gasoline after reading this.

HOLBERT, C. L. Explosion Wrecks Pumping Station. Sewage Works Engin. 15, 1:8 (Jan.), 1944.

Quote—The Government Printing Office is today the largest single industry of its kind in America, if not the entire world. Unquote. That startling statement has so floored me that I don't remember much about the rest of the item except that the industrial hazards there seemed pretty well taken care of. Despite wartime paper needs the Congressional Record goes windily on!

BRANDT, A. D., and REICHENBACH, G. S. Lead Exposures at the Government Printing Office. J. Indust. Hyg. & Toxicol. 25, 10: 445 (Dec.), 1943.

They Need Better Diets—In a group of pregnant women it was found that only 10 per cent consumed diets which met recommended standards of protein content. Protein in the diet and the size of the infant were found to be related. In earlier reports in this study, the mother's food was shown to have a profound effect upon the health of the infant. Reprints of the three papers in the series may be obtained by writing the Harvard School of Public Health.

BURKE, B. S., *et al.* Nutrition Studies During Pregnancy. J. Pediat. 23, 5:505 (Nov.), 1943.

Peering Into the Future—Much can be done through health education to make us a healthier nation, and that is the direction in which future health administration will proceed, says one who has earned the right to his opinion.

DUBLIN, L. I. The Duration and Thereafter for Public Health Nursing. Pub. Health Nurse. 36, 1:3 (Jan.), 1944.

No One Is Immune to This—There is not much public health in this article, but it is a most readable account of a completely unbelievable racket. You will be amused but you will be left wondering when your particular job may become a tempting objective for a scalawag.

FRYE, J. G. Battling the Tank Repair Racket. J. Am. Water Works A. 35, 12: 1574 (Dec.), 1943.

It Was Excellent—What was? See subject of this paper.

HEAGERTY, J. J., and MARSHALL, J. T. State of Health of the People of Canada in 1942. Canad. Pub. Health J. 34, 12:529 (Dec.), 1943.

Hunt Out This Issue—As a warning against the use of the discredited pulmotor now parading under the name of "resuscitator," this paper should be known to all health workers, even those who may have only a remote interest in first aid and early care.

HENDERSON, Y. The Return of the Pulmotor as a "Resuscitator." A Back-Step Toward the Death of Thousands. Science. 98, 2556:547 (Dec. 24), 1944.

Why Dairy Products Are Scarce—You should have at tongue's end the information furnished in this authoritative statement, as a ready answer to

that subversive pest who snarls about the shortage of butter "because it is going to the Russians." Despite the greatest number of dairy cattle ever kept and an improvement in production per cow, butter is scarce chiefly because more people can buy it nowadays —thank God! The figures are here.

HULT, M. Availability of Dairy Products in Coming Months. J. Am. Dietet. A. 20, 1:12 (Jan.), 1944.

How Much Mental Ill Health?—A survey of all the major surveys conducted and published during the last 15 years upon the prevalence, incidence, and expectancies of mental ill-health leads to the conclusion that such studies are basically incomparable and disappointing. If intelligent planning depends upon knowledge of the magnitude of the problem, then apparently we haven't a particularly strong need to lean on in this particular swamp of ignorance.

LEMKAU, P., *et al.* A Survey of Statistical Studies on the Prevalence and Incidence of Mental Disorder in Sample Populations. Pub. Health Rep. 58, 53:1909 (Dec. 31), 1943.

From Tobacco Mosaic to the Rickettsias—Though the author calls his five thousand word essay (with 93 references) a brief summary limited in scope, the chances are you will find in it plenty of meat for one evening's tussle with scientific English. But if you will sharpen your concentration you will be repaid for the effort.

LENNETTE, E. H. Recent Advances in Viruses. Science. 98, 2550:415 (Nov. 12), 1943.

Raw Milk Not the Sole Offender—Packing-house workers have a habit of eating partially cooked meat, a finding which is suggestive in the epidemiology of Brucellosis in this occupational group. Do you suppose other food handlers are similarly addicted?

LEVINE, M. G. Brucellosis in Packing-House Workers. J. Indust. Hyg. & Toxicol. 25, 10:451 (Dec.), 1943.

Confident England—Since World War I, one-third of the population of England has been rehoused. Other improvements in national health are recounted, as a backdrop for the health protection schemes adopted during World War II. Despite the exigencies of the day, the British medical authorities bravely look to the future, and envision a comprehensive public medical service.

MACNALTY, A. S. Britain's Development of Preventive Medicine. Canad. Pub. Health J. 35, 1:10 (Jan.), 1944.

Rats Are Persistent Beasts—Exterior walls placed about old buildings in the hope of keeping out rats must be el-shaped with an underground flange extending out from the building if they are to be effective. Then all rats inside the building must immediately be killed.

PORGES, R. The Use of Curtain Walls in Rat Proofing. Pub. Health Rep. 58, 52:1881 (Dec. 24), 1943.

Salus Populi Suprema Est Lex—Misconceptions, that social medicine is synonymous with (a) preventive medicine, and (b) socialized medicine, are ably and provocatively explored by an Oxonian professor. We are standing at the beginning of the third epoch in preventive medicine, he says, and he outlines the nature of the new socio-medical problems confronting health and medical leaders. He ends, "notably in the land of our most virile and victorious ally, there have been important experiments in social medicine and hygiene from which we have much to learn." He is not referring to the U.S.A., I take it!

RYLE, J. A. Social Medicine: Its Meaning and Its Scope. Milbank Quart. 22, 1:59 (Jan.), 1944.

Significant Quarter Century—Russia is a strange place. The poor, abused people there have no freedom—to buy patent medicines, nostrums, and expensively useless beauty aids—for the commissariats have charge of the production of all medical commodities. The miserable wretches are not free to be healed by nature-quacks, bone-benders, or faith healers, for the same commissariats control the schools for the training of all medical personnel. Incidentally, the commissariats have charge of health education, health promotion and recreation, medical services, and rehabilitation.

SIGERIST, H. E. Twenty-five Years of Health Work in the Soviet Union. Am. Rev. Soviet Med. 1, 1:67 (Oct.), 1943.

First Need Is a Good Water Supply—Water supply additions and improvements to the tune of eight hundred millions will be required when the war is over, say these surveyors of our sanitary needs.

STREETER, H. W., and RANERI, R. National Inventory of Needs for Sanitation Facilities. Pub. Health Rep. 59, 1:1 (Jan. 7), 1944.

Nowadays We Acknowledge Our Slums—Time was when the local chamber of commerce and city officials would scream to high Heaven that no slums existed in the fair city of . . . (deleted by the censor), but all is changed now. Reasons are discussed.

TWICHELL, A. A. A Yardstick for Postwar Housing. Pub. Health Nurs. 36, 1:12 (Jan.), 1944.

Some Fat Children Eat Less—Here are two findings which will give you something to mull over: most high school students do not need as many calories as have been recommended for these ages, and variation in needs of individual students is so great that no average can be considered a reliable evaluation of adequacy. It would seem that the next move was the National Research Council's.

WEIL, D. G. Medical Evaluation of Nutritional Status. Milbank Quart. 22, 1:5 (Jan.), 1944.

Healthy Homes—Something about the progress in improving housing in the United States under the aegis of this association's committee is recounted for our Canadian brethren. Let's hope that the prediction—in the next peace era we can look forward to notable advances—comes true: there will be plenty of Americans who will do their best to hamper the work.

WINSLOW, C.-E. A. Housing and the Health Officer. Canad. Pub. Health J. 35, 1:1 (Jan.), 1944.

ASSOCIATION NEWS

Professor Winslow Assumes Editorship

As the Journal goes to press, the Editorial Board is able to announce the appointment of Professor C.-E. A. Winslow as Editor of the Journal, beginning with the April issue, and succeeding Dr. Harry S. Mustard whose resignation as Editor is announced in the editorial columns of this issue.

Professor Winslow has been and is so closely identified with Association affairs, through the Committee on Administrative Practice, which he served as Chairman for 15 years and the Committee on the Hygiene of Housing, which he has chaired since its creation 7 years ago, as to need no introduction to Journal readers. His other Committee and Section connections have been numerous, and he has contributed regularly to the Annual Meetings and the Journal. He was elected President of the Association in 1926, and received a 40 year membership certificate and the Sedgwick Memorial Medal in the same year, 1942.

He is as well known among heating and ventilating engineers, bacteriologists, and housing experts as to public health workers. His bibliography is long and impressive, including hundreds of articles, pamphlets and such books as *The Life of Hermann M. Biggs, The Evolution and Significance of the Modern Public Health Campaign, A City Set on a Hill, Health on the Farm and in the Village*, and *Health Under the "El."* His latest book is *The Conquest of Epidemic Disease*.

Professor Winslow is Anna M. R. Lauder Professor of Public Health at Yale University, New Haven, Conn.

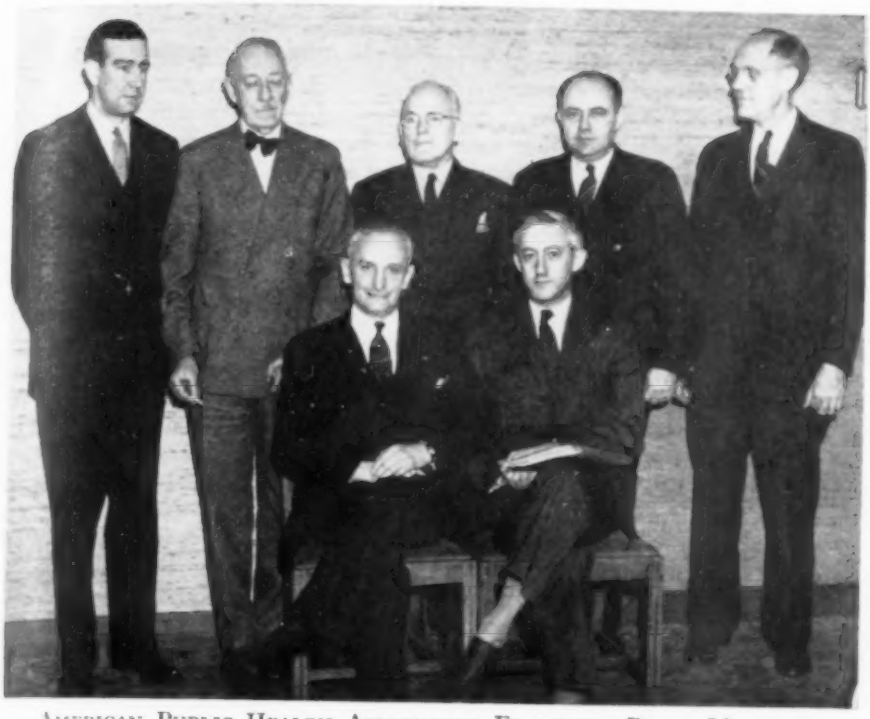
Executive Board Meeting

THE Executive Board of the American Public Health Association met in New York on January 28 and discussed many important Association matters. Present were Abel Wolman, Dr.Eng., *Chairman*, James A. Doull, M.D., Hugh R. Leavell, M.D., Edward G. McGavran, M.D., Charles F. Wilinsky, M.D., C. C. Young, D.P.H., and Reginald M. Atwater, M.D., Executive Secretary. Unable to be present were Louis I. Dublin, Ph.D., the Treasurer, John J. Sippy, M.D., President-elect, and Felix J. Underwood, M.D., President.

The Board reviewed Association affairs since the Annual Meeting and was gratified with the favorable financial position at the end of 1943. Total income for the year was $194,479.25 and total expense $186,007.39. Association membership has reached a record high of 8,022, representing a net gain of about 800 members during the year. Appreciation was expressed to the members and Fellows who contributed to this gain by submitting the names of prospective members. The total *Journal* circulation now exceeds 11,200 copies each month, an increase of almost 10 per cent in January, 1944. The Board recognized the increased activity in the Book Service, the Information Service, and the Employment Service, as well as in all other departments.

The resignation of Dr. Harry S. Mustard as Editor of the *American Journal of Public Health* was received with deep regret and a resolution expressing appreciation to Dr. Mustard for his extraordinarily effective leadership during his term of service was unanimously approved. An editorial on his retirement appears elsewhere in this issue.

There was unanimous agreement that



AMERICAN PUBLIC HEALTH ASSOCIATION EXECUTIVE BOARD MEETING, JANUARY 28, 1944

Left to right: Standing: Hugh R. Leavell, M.D., Louisville, Ky.; C. C. Young, D.P.H., Lansing, Mich.; James A. Doull, M.D., Cleveland, Ohio; Edward G. McGavran, M.D., Clayton, Mo.; Reginald M. Atwater, M.D., Executive Secretary. Seated: Charles F. Wilinsky, M.D., Boston, Mass.; Abel Wolman, Dr.Eng., Baltimore, Md. (Absent: Louis I. Dublin, Ph.D., New York, N. Y., Treasurer; John J. Sippy, M.D., Stockton, Calif., President-elect; and Felix J. Underwood, M.D., Jackson, Miss., President.)

there should be an Annual Meeting in 1944, and the Executive Board approved in principle a meeting in Chicago. Recognizing that suitable dates and hotel arrangements may be difficult to secure in that city, the Board voted to accept an invitation to hold a War-time Conference in New York City if space and time offer insuperable obstacles in Chicago. The membership will be advised when a definite decision is reached.

Authorization was given for the participation by the Association in the publication of a *Glossary of Terms for Use in Water Control Engineering* in collaboration with the American Society of Civil Engineers, the American Water Works Association, and the Federation of Sewage Works Associations.

Enthusiastic approval was given to a "repeat performance" of a series of meetings in the Midwestern and Western states in May and June, and plans are going forward which give evidence that the second tour will be as successful as the first.

It was pointed out that the 15th Annual National Health Honor Roll will be concluded this April with the expected participation of about 100 cities and counties. Beside this number at least 150 communities in 14 states will also submit schedules as the result of an effort to interest those communities which did not wish to enter a competi-

tive contest yet were desirous of preparing an inventory of health assets and liabilities for national grading and comments. It seems that the Contest plan, carried on over the years, has laid the foundation for the next desirable objective, namely, the formation of a national reporting area for health practices. This new plan had brought out a favorable response from the state health departments in the 14 states reached, a response that was not forthcoming under a continuation of the Contest or Honor Roll plan. This will involve the direct participation of state departments of health both in urging the annual inventory upon the communities and in the distribution of schedules, as well as in the return of filled out schedules through the state departments of health. The public reception of the recent publication, *Health Practice Indices*, has been most cordial.

Appointments were made to the Standing Committees and these will be covered in the Committee List which will appear in the April *Journal*, together with other committee appointments and Section appointments which were confirmed.

The resignation of Dr. Henry F. Vaughan as Chairman of the Committee on Administrative Practice was regretfully received. The Executive Board acknowledged the Association's indebtedness to Dr. Vaughan for his able leadership and expressed the hope that his health would soon permit him to resume active participation in Association affairs.

Gratification was expressed with the progress being made by the Merit System Unit of the Committee on Professional Education in making examination material available to an increasing number of states, a service for which the federal agencies have indicated continued approval and appreciation. To date more than 65 examinations have been prepared for 14 states and 1 city.

The Executive Board considered at length the subject of public medical care and its relationship to the public health profession. It appointed Hugh R. Leavell, M.D., as its representative to review this field. Dr. Leavell has chosen to identify himself for the present with the new Subcommittee on Medical Care of the Committee on Administrative Practice which met on February 11.

Consideration was given to the possibility of broadening participation in the election of Association officers, and the Executive Secretary was instructed to present to the Governing Council in advance of its next meeting a report outlining several choices of methods which may be more acceptable than the one employed at present.

The applications of 12 concerns for Sustaining Membership were approved, bringing the total of Sustaining Members in the Association to 33. Those elected at the meeting were: American Bottlers of Carbonated Beverages, The Borden Company, Clay-Adams Company, Inc., Effervescent Products, Inc., Hoffman-LaRoche, Inc., Holland-Rantos Company, Inc., International Equipment Company, The Macmillan Company, Sealright Company, Inc., E. R. Squibb & Sons, The Upjohn Company, and the Winthrop Chemical Company. The Executive Board received with appreciation a contribution to the work of the Association from the Ciba Pharmaceutical Products Company, Inc.

The matter of adequate compensation for professional public health personnel, in line with the qualifications for various classes of public health workers established by the Committee on Professional Education, was discussed. The Executive Secretary was authorized to seek the aid and support of other professional societies with an aim to establishing adequate salary scales.

STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS

* * *

Corrections in the Text of the Eighth Edition of Standard Methods for the Examination of Dairy Products

The following corrections are being incorporated in a reprinting of the Eighth Edition of *Standard Methods for the Examination of Dairy Products*. They are reproduced here so that those possessing copies of the Eighth Edition may make the corrections therein. There are no other changes in the reprinting.

Separates of the corrections are available and may be received on request to the Association office, 1790 Broadway, New York 19, N. Y.

Page 8. Insert the following sentence between "gauge" and "Use," 2nd line "To insure sterility, rely upon the temperature in the autoclave rather than upon the pressure."

" Insert sentence following line 9, as follows: "In emergencies, suitable pressure cookers may be substituted for autoclaves."

" Line 10. Insert "or pressure cookers" after "sterilizers" at end of line.

Page 10. Change lines 4–10 to read "Clean cold water for rinsing the stirrer and (1) another can containing hot water kept continuously at not less than 180° F. by passing live steam through it, or (2) another can containing a hypochlorite solution (strength maintained at not less than 100 parts per million of available chlorine) for the practical sterilization of the stirrer. Rinse the stirrer first in cold water and then allow it to stand in the hot water or chlorine solution while making preparations to take the next sample (Figure 1). Where plate counts are made on the collected samples, plate samples of the sterilizing solution each day when sampling is completed."

Page 19. Add new sentence just before the last sentence of the first complete paragraph: "Bottles with screw cap closures may be used where leak proof closures are assured. (These may require new liners in caps after each use.)"

" Insert an additional sentence at end of paragraph under "3. Petri Dishes" "Remove plates from containers when these are placed in the incubator chamber in order to permit plates to reach the incubation temperature promptly."

Page 20. Fifth line from bottom. Insert "anhydric" between the words "use" and "incubators."

" Third line from the bottom insert between "high" and "because" "(or equivalent space)."

Page 21. Line 2. Section 8. Water. For the word "distilled" in the second line of this paragraph substitute "buffered phosphate dilution water prepared, in conformity with Section K, page 126." This brings the Dairy Products requirements for dilution water into conformity, with the statement in *Standard Methods of Water Analysis*, Section XII, page 156 and Section V, page 207.

Page 24. Last line delete "containing unmeasured quantities."

Page 27. End of Section 4, add new paragraph reading "Use a separate sterile pipette for each sample and for each dilution. Do not rinse pipettes in dilution waters."

Page 28. Section 6. Cleaning Pipettes. Rewrite as follows:
"Because improperly cleaned pipettes may cause incomplete deliveries, thoroughly wash pipettes with suitable detergents after each use and periodically soak them overnight in a strong cleaning solution. A bichromate-sulfuric acid cleaning solution may be prepared by adding 50 gm. sodium bichromate to 200 ml. of water in a glass or earthen container, and then cautiously add 300 ml. of sulfuric acid, commercial grade or Babcock testing grade. Wash acid-treated glassware thoroughly in alkaline waters and then thoroughly and repeatedly rinse in clean water. Tests on the rinsed glassware for presence of residual acid or alkali may be made by using appropriate indicators, such as brom thymol blue, Andrade's, etc."

" Last line change "42°" to "44°."

Page 29. Line 10, add sentence reading: "Where clay tops are used, inversion of plates during incubation is unnecessary."

" Under VI. Incubation, change first sentence to read: "Arrange plates or piles thereof on the shelves of incubation chambers so that they are separated horizontally from each other and from the top and walls of the chamber by at least 1 inch."

Page 30. Line 6. Add to paragraph "Accurate maximum and minimum recording thermometers or automatic temperature controlling and recording devices may be found desirable and may be used."

Page 31. Rewrite as follows:

I. SELECTING SUITABLE PLATES

After incubation of two plates per sample, one from each of two dilutions, it is expected that the number of colonies on at least one, and perhaps occasionally both plates, will be between 30 and 300.[33, 34] The optional use of more than two plates per sample is allowed. These extra plates may be either of the same or of different dilutions. Count all colonies including those of pin point size and include them in the officially reported count.

Report as the standard plate count the number of colonies on the plate yielding between 30 and 300 colonies (or the average if the number on both plates is within the limits) except (1) where more than one plate per dilution is made and (2) where there are no plates with colonies within the 30 and 300 limit.

(1) If two or more plates are made from the same dilution and only one has colonies within the 30 to 300 limit, use the others of the same dilution to determine the average count. In certain rare instances, this might include the counts from successive dilutions as some plates of the lower dilution might have less than 300 colonies and others more than 300, while some plates from the higher dilution might have more than 30 colonies and others less. In such cases use the average of all of the plates.

(2) Use the plate with nearest 300 colonies for the standard plate count if the dilutions selected are too low to give colonies within the 30 to 300 limits. Use counts from plates with less than 30 colonies only when no other plates are available.

Regardless of any of the above requirements, if the number of colonies developing on the suitable plates from successive dilutions is such that the higher count is more than twice the lower count, use the count or counts from the plate or plates which give the lower

count. Normally these will be the plate or plates with the number of colonies nearest 300.

Page 32. At top of page 32 start new paragraph with first sentence "If the number of colonies . . ."

" End of first partial paragraph add "If none of the plates show colonies, report the result of the analysis as unsatisfactory."

" Under 2. Counting Aids, change fourth complete sentence 2nd line above cut to read: "Examine carefully any doubtful specks in the agar using additional magnification where required to distinguish colonies from dirt specks."

Page 33. Under 4. Spreading Colonies, delete 2nd sentence which reads: "Count each as a single source." Insert the following in place of the 3rd complete sentence to read: "The first type is a chain or chains of colonies which appear to arise from the disintegration of more or less compact clumps of bacteria found in the milk. If but a single chain of colonies is formed count the chain as one. If several chains are formed count the approximate number of chains. Do not count each individual colony as one.

" "In the second and third types of spreaders, count each spreader as a single source. Discard plates where the spreader covers more than half of the plate."

Page 35. Under 5. Estimating Colonies on Crowded Plates, substitute the following for all except the last sentence: "Where the number of colonies on the plate appreciably exceeds 300, count colonies in portions of the plate representative of colony distribution and estimate therefrom the total number on the plate. Where there are from 5 to 10 colonies per sq. cm. area, count the colonies in from 12 to 14 different areas, selecting, if representative, the 6 consecutive squares diagonally across the plate and the 6 consecutive squares, at right angles to the first diagonal. Where there are more than 10 colonies per sq. cm. area, count colonies in 4 such sq. cm. areas, selecting, if representative of colony distribution, the 4 areas near the center. Multiply the average per sq. cm. area as found by the appropriate factor, to obtain the number of colonies per plate."

Page 46. Line 1 under Figure XI, change "Spread the films either" to "Spread the films evently."

Page 52. Line 10, end sentence with "rapidly." Delete "or" and start next sentence with "Otherwise."

Page 64. Line 5 from bottom, change "visual" to "visible."

Page 79. Second paragraph, second sentence under Presumptive Test, 12th line from bottom of page, change to read: "In pasteurization control, for example, 5 tubes or even 3 tubes each inoculated with 1 ml. (or 10 ml.) are sufficient where frequent routine analyses have shown that results are likely to be negative. In this work as in bacterial count work, a simple examination of routine samples taken frequently will give more useful information than a more complete examination of samples taken at infrequent intervals."

Page 107. 4th complete paragraph 13th line from bottom of page change "The National Aniline and Chemical Company" to read: "The National Aniline Division of the Allied Chemical Company."

Page 128. Substitute the following for the statement in line 15 beginning "20 times the number of colonies" to read "10 times the sum of the number of colonies on the two plates receiving 1 ml. each of rinse solution, or 100 times the sum of the number of colonies on the two plates to which 0.1 ml. each was added, equals the estimated number of colonies per bottle."

Page 195. First line "45 ml." not "45 gm."
4th line under 3. Dried Eggs. "99 ml." not "99 gm."

Page 267. Line 5 under C. Apparatus, insert "C." after 34°–37°.

Page 271. Under C. Apparatus, line 1, pipettes, line 2, tubes. Line 3—tubes 150 x 15 mm.
Under D. Permanent Color Standards—a. Color solution red delete—"0.58."

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Francisco Berio-Suarez, M.D., Comerio, Puerto Rico, Public Health Officer

Eugene S. Brown, M.D., Summersville, W. Va., Nicholas County Health Officer

Samuel J. Brownstein, M.D., 2059 Alta Ave., Louisville, Ky., Asst. Director of Health, Louisville and Jefferson County Health Dept.

Ruth R. Burroughs, M.D., Hinds County Health Dept., Jackson, Miss., Asst. Director

J. Lindsay Cook, M.D., Alamance County Health Dept., Graham, N. C., Health Officer

Ruth E. Dunham, M.D., 155 Flora Ave., Peoria 5, Ill., Asst. Surgeon (R), U. S. Public Health Service

Robert H. Fishbach, M.D., Lewis-Pacific Dept. of Health, Chehalis, Wash., P.A. Surgeon, U. S. Public Health Service

Godofredo Garcia-Justo, M.D., M.P.H., 1034 E. Huron St., Ann Arbor, Mich., Student, Univ. of Michigan

John Howie, M.D., D.P.H., Local Board of Health, 15 Chatham St. E., Windsor, Ont., Canada, Medical Officer of Health

Robert H. Johnson, M.D., Princess Anne, Md., Deputy State Health Officer

Dr. Felix Larague, Service d'Hygiene, Port au Prince, Haiti, Sanitary Officer

John Mills, D.P.H., Fairlawn, Heathfield Rd., Liverpool 15, England, Asst. Medical Officer of Health

William R. Munson, M.D., Health Officer, Westport, Conn.

James A. Newcome, M.D., Carskadon Road, Keyser, W. Va., Mineral County Health Officer

Walter J. Riley, M.D., Sutton, W. Va., Medical Director, District No. 1, State Health Dept.

Capt. Saul Steinberg, M.C., V.D.C.O., Camp Carson, Colo., U. S. Army

Laboratory Section

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Ethalinda H. Brower, Health Dept. Laboratory, Salisbury, Md., Assoc. Bacteriologist, State Dept. of Health

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Food and Nutrition Section

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Bernadine Malinka, Room 225, State House, Indianapolis 4, Ind., State Director, National Foundation for Infantile Paralysis, Inc.

Harriet P. Pittman, Stoneleigh Hotel, Dallas 1, Tex., Texas Representative, National Foundation for Infantile Paralysis, Inc.

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Peter C. Stone, 120 Broadway, New York, N. Y., Director of Chapters, National Foundation for Infantile Paralysis, Inc.

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Giddings B. Tiffany, 335 South Pacific St., Pittsburgh 24, Pa., State Director, National Foundation for Infantile Paralysis, Inc.

Ruth Williams, 621 Stockton St., San Francisco 8, Calif., Western Regional Director, National Foundation for Infantile Paralysis, Inc.

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Elizabeth S. Arundale, R.N., 750 Hinman Ave., Evanston, Ill., Field Nurse, Tuberculosis Institute of Chicago and Cook County

Elma Backstrom, R.N., 705–9th Ave. W., Ashland, Wis., Wisconsin State Indian Service Nurse, State Board of Health

Helen M. Carpenter, R.N., Provincial Board of Health, Parliament Bldgs., Victoria, B. C., Canada, Supervisor of Public Health Nursing

Carolyn G. DeBolt, R.N., Williams, Calif., Supervisor of Child Welfare and Attendance, Colusa County Schools

Jean Harper, R.N., 109 S. 32nd Ave., Omaha, Nebr., Asst. Prof. of Public Health Nursing, Univ. of Nebraska

Helen S. Haughton, R.N., 221 E. State St., Columbus, Ohio, Superintendent, Columbus Cancer Clinic

Dorotha A. Jackson, Wrangell, Alaska, Public Health Nurse, Alaska Territorial Dept. of Health

Dorothy C. Lowman, R.N., 719 Harrison Ave., Salt Lake City, Utah, Director, Public Health Nursing, State Board of Health

Lynn B. McCaffrey, 802 Second Ave., S., Nashville 10, Tenn., Educational Director, Nashville Public Health Nursing Council

Rosa Roura de Lopez, Nueva St. 3, Hato Rey, Rio Piedras, Puerto Rico, Public Health Nurse, Venereal Disease Clinic

Marion A. Schuler, R.N., Church Rd. & First Ave., Bensenville, Ill., Orthopedic Nurse, Univ. of Illinois, Div. of Services for Crippled Children

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Dorothy E. Tate, M.A., Box 377, Nanaimo, B. C., Canada, Supervisor, Public Health Nursing, Provincial Board of Health

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Marina Vazquez-Baez, Public Health Unit, Barranquitas, Puerto Rico, Supervisor of Public Health Nurses, Dept. of Health

Carmen E. Vazquez-Guerra, 31 Virtud St., Ponce, Puerto Rico, Supervisor of Nurses, Dept. of Health

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Leon H. Flancher, M.D., M.P.H., 3304 Terrace Drive, Des Moines, Iowa, Director, Div. of Tuberculosis, State Dept. of Health

Capt. Emanuel B. Schoenbach, M.C., 615 N. Wolfe St., Baltimore 5, Md., Consultant to Secretary of War

Unaffiliated

Dr. Margaret Bechhofer, 315 W. 57th St., New York, N. Y., Medical Inspector of Schools

Evelyn Flook, 1026 15th St., N.W., Washington 5, D. C., Assoc. Administrative Analyst, U. S. Public Health Service

Elsie C. Hochmeister, 1571 Boulevard, West Hartford 7, Conn., State Clerk-Field Secretary, National Foundation for Infantile Paralysis, Inc.

Wilbur E. Powers, 330 Hamilton Ave., No. 3, Trenton 9, N. J., Asst. to the Secretary and Chief Inspector, New Jersey State Board of Pharmacy

DECEASED MEMBERS

Fred Adams, M.B., D.P.H., Windsor, Ontario, Canada, Elected Member 1914, Elected Fellow 1922, Charter Fellow, Health Officers Section

J. J. McShane, M.D., Dr.P.H., Springfield, Ill., Elected Member 1915, Elected Fellow 1922, Charter Fellow, Epidemiology Section

H. Allen Moyer, M.D., Charlotte, Mich., Elected Member 1939, Unaffiliated

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

Wanted: A physician trained in tuberculosis to assume administrative control of the Bureau of Tuberculosis in an eastern city of 200,000 population. Salary $3,900–$4,500 plus cost of living adjustment. Address **Box B,** Employment Service, A.P.H.A.

Sanitarian wanted: Preferably with Bachelor's degree or engineering degree, plus public health experience or training. Must have own car. Applicant with lower qualifications will be offered an opportunity to take a short, free indoctrination course. Salary $1,920 per year with travel allowance of $50 per month, if qualified. Apply Dist. Dept. of Health, No. 6, Central Office, Newberry, Mich., Dr. Franklin.

Wanted: Pediatrician to supervise medical care of children at cerebral palsy center being established by private institution in coöperation with Illinois Division of Services for Crippled Children. Salary commensurate with experience and training. For further information write Lawrence J. Linck, Director, Division of Services for Crippled Children, 1105 So. Sixth St., Springfield, Ill.

The Department of Health, New Jersey, whose industrial health activities have expanded rapidly during the present war, has announced its need for two full-time industrial hygiene physicians for its Industrial Hygiene Service. As one of the leading states in the production of war materials, New Jersey offers unusual opportunities for gaining experience in occupational disease control besides giving the physician a chance to make a valuable contribution to the war effort. The principal duties of the selected physicians will be consultations in regard to the following: control of occupational diseases; industrial toxicological problems; evaluation of adequacy of plant medical services; promotion of measures which will reduce absenteeism from non-occupational causes; and conduct of industrial health education activities. Physicians interested in these positions should write to the Department of Health, Trenton, N. J.

Merit System for Personnel Administration in Delaware will set examinations for 3 positions in the Delaware State Board of Health shortly. The positions open for examination, together with the beginning salaries, are: Deputy State (County) Health Officer ($3,800), Pediatrician ($3,600), and Medical Social Consultant ($2,400).

These examinations will be unassembled, but successful candidates will be expected to appear in Delaware for an oral interview which will be a weighted part of the examination. Appointments may be expected soon after the examinations are conducted.

Information and specifications as prepared for each position may be secured by communication with the Merit System Supervisor, P. O. Box 1911, Wilmington, Del., and application for examination must be made on the official form.

The Milwaukee Health Department is interested in obtaining an instructor in hospital nursing to conduct a student educational program in its communicable disease hospital. Salary offered begins at $125 per month with maintenance, and increases of $5 per month each year until $135 has been reached. To this basic salary there has been added a cost of living bonus of $30.64 per month, making the total beginning salary $155.64 plus maintenance. Apply to Dr. G. F. Burgardt, Deputy Commissioner of Health, Milwaukee, Wis.

Wanted: Public health physicians in Texas. George W. Cox, M.D., State Health Officer, Austin, Tex.

Hawaiian Territorial Board of Health seeks trained engineer to supervise rodent plague control program. Salary range from $331.67 to $398.33 per month subject to retirement deductions plus bonus. Position under Territorial civil

service system with classification of P-4. For further details address A.P.H.A. Employment Service.

Wanted: Physical therapist by Crippled Children's Division. Should be graduate of a school of nursing or of college, with a major in physical education or science; have completed a course in physical therapy; should have had experience in physical therapy, preferably with children. Write for application blank to Merit System Council, 416 Henry Building, 309 S.W. 4th Ave., Portland 4, Oregon.

Psychiatric **case worker** desired for mental hygiene clinic, Department of Health, Peoria, Ill.

Senior **Sanitarian, Alaska Health Department.** Minimum requirements 2 years college, 6 months public health course, 2 years' experience. Two additional years' experience acceptable instead of each year college. Monthly salary $235–$265. Mary B. Pool, Alaska Merit System, Juneau.

Michigan announces civil service positions now open for orthopedic public health nurse, Grades II and III classes with the Michigan Crippled Children's Commission. Salary range: Grade II $230 to $270 per month; Grade III $280 to $340 per month. Grade II not under 23, Grade III not under 25. Must have completed course in orthopedic nursing or physical therapy in approved school. For Grade III position a full-time course of at least 9 months' duration is required. Must have 3 years' experience in public health nursing, one year of which shall have been in supervisory capacity. For Grade III position one additional year of nursing and one additional year of supervisory experience required. Eligibility for certificate in public health nursing and registration as a nurse in Michigan. For further information write Michigan Civil Service Commission, 310 No. Grand Ave., Lansing 4, Mich.

Industrial **Hygiene Toxicologist.** Calls for person of chemical or chemical engineering background. Position, supervising of chemical work of industrial hygiene service and industrial hygiene laboratory; designing special apparatus for field studies on occupational disease problems; conducting field and laboratory analyses of toxicological exposures in industry; keeping records, interpreting results and preparing records. Requirements, knowledge of chemical laboratory methods and equipment; procedures for qualitative and quantitative analysis of organic and inorganic chemistry; knowledge of chemical methods of determining toxic materials in industry; familiarity with petrographic methods of mineralogical analysis. Immediate temporary appointment will be made, to be followed later by civil service examination to determine permanent status. Salary $2,900 base, plus $100 a year war adjustment, or total of $3,000 per year. Travel expenses also allowed. Must be U. S. citizen. Resident of any state may apply. Write J. Lynn Mahaffey, M.D., Director of Health, State Department of Health, Trenton 7, N. J.

Wanted: Public Health Nurse. Salary $175 per month and full maintenance, plus $25 per month for car expense. Must furnish own car. Write Paul D. Crimm, M.D., Director Boehne Tuberculosis Hospital, Evansville 12, Ind.

City of 70,000, southeastern U. S., seeks qualified health commissioner between the ages of 30 and 45, draft exempt. Salary $4,500 plus auto allowance of $300 per year. **Box V,** Employment Service, A.P.H.A.

Assistant Sanitarian in well established Ohio department of health. Minimum experience 2 years required. Merit system prevails. Salary $1,800–$2,400. Write **Box K,** Employment Service, A.P.H.A.

Wanted: Bacteriologist to conduct virus laboratory in the Laboratory Section of the Health Division, City of St. Louis. Applicant must have graduate degree with research and practical experience in virology. Salary range from $220 to $360 a month, depending upon ability. Position under Civil Service. Write **Box W,** Employment Service, A.P.H.A.

Wanted: Statistical clerk, preferably with college degree and experience in health education, to study and analyze vital statistics in suburban and rural county adjacent to Washington. Special emphasis on relation to health department services and participation in Health Honor Roll. Address V. L. Ellicott, M.D., Dr.P.H., Montgomery Co., Rockville, Md.

Wanted: Medical Social Worker for Dept. of Health, Peoria, Ill. Address Director Maternal and Child Health, Dept. of Health, Peoria, Ill.

Wanted: Physician in eastern city of 200,000 population as Director of Bureau of Maternal and Child Hygiene. Address **Box C,** Employment Service, A.P.H.A.

Wanted: Physician (male), American citizen, draft exempt, trained in pediatrics, for a 3 year position as chief resident and

research assistant in fine pediatric tuberculosis hospital, New York. Good salary and maintenance. Only one intensely interested in research need apply. Send full details of qualifications and photograph. **Box R**, Employment Service, A.P.H.A.

Wanted: X-ray technician to travel with portable x-ray unit taking chest x-rays at tuberculosis case finding clinics. Includes both industrial and school surveys. Salary $35 per week plus travel and maintenance when away from headquarters. Address **Box M**, Employment Service, A.P.H.A.

Wanted: Resident physician for plant in South America. Must have thorough knowledge of malaria, tropical medicine, and vector control. Must be eligible for licensure in British Colony. Address **Box H**, Employment Service, A.P.H.A.

Physician wanted as Director of Maternal and Child Health in western county health department. Preferably with training in pediatrics and venereology. Some venereal disease control work also. Man preferred but woman considered. Must be in good health. Salary $4,500 per year with car and expenses furnished. Position for duration of war. Address **Box S**, Employment Service, A.P.H.A.

Tuberculosis Association in large western city seeks a trained and experienced health education director, a director of medical social work, and a public health nurse supervisor. Attractive positions now open in agency with a dynamic program closely related to official groups. Address **Box D**, Employment Service, A.P.H.A.

U. S. Indian Service seeks physicians for service in the United States and Alaska. Address Office of Indian Affairs, Health Division, Merchandise Mart, Chicago 54, Illinois. Application blanks will be furnished upon request.

FOR OTHER POSITIONS AVAILABLE WRITE EMPLOYMENT SERVICE, AMERICAN PUBLIC HEALTH ASSOCIATION, 1790 BROADWAY, NEW YORK 19, N. Y.

In view of the current active demand for trained and experienced persons in public health, it is suggested that prospective employers communicate directly with the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y., for up-to-date lists of applicants.

POSITIONS WANTED

ADMINISTRATIVE

Physician, age 37, M.D. Iowa, Dr.P.H. Harvard, specializing in tuberculosis, seeks position as medical director of a sanatorium or a state bureau of tuberculosis. Exempt from military service. **A-476**

Physician, M.D. University of Arkansas, M.P.H. Harvard, experienced as county health officer. Age 35. Will consider position as county or city health officer or director of a bureau. **A-506**

Physician, M.D. Yale, with private practice industrial medicine. Age 39 and draft exempt. Seeks opportunity as public health physician. **A-505**

Woman physician, experienced in public health education and school health service administration and supervision, seeks full- or part-time position, preferably southeastern New York State. **A-511**

HEALTH EDUCATION

Woman with background of health education and public health nursing, experienced as teacher, supervisor, and writer, seeks teaching position of responsibility. **H-507**

Health educator with Master's degree in public health and some experience. Prefers position in official agency. **H-510**

LABORATORY

Research bacteriologist. Unusually trained and experienced woman bacteriologist and serologist now occupying responsible position in state laboratory seeks research work of permanent character. **L-468**

Water chemist, bacteriologist. M.S. degree in Sanitary Chemistry. Age 36, draft exempt. Eight years' experience in state laboratory working on water, milk and sewage. Prefers Midwest or Pacific Northwest location. **L-469**

MISCELLANEOUS

Public Health Nurse. B.S. in nursing, William and Mary College, age 53, seeks position as coördinator of public health nursing, educational director, or director student nurse public health program. Prefers Middle Atlantic States. **M-452**

NEWS FROM THE FIELD

NEW YORK STATE TRAINS SUBSTITUTE ENGINEERING PERSONNEL

According to the New York State *Health News*, the New York State Department of Health, as a wartime measure to meet a serious public health problem caused by a shortage in the ranks of its sanitary engineers, has evolved a plan calling for intensive on-the-job training of graduate civil engineers, the first 6 of whom have already been appointed. During the early months of the war promotions of junior engineers replaced 14 key men who were called to the military services, but replacements for 8 district sanitary engineers now expecting calls to the service have proved very difficult. After a canvass of practically the entire country, 8 graduate engineers have been obtained to fill the unexpected vacancies. They will be trained in public health engineering and will handle the work of this nature in the districts to which they will be assigned under the supervision of sanitary engineers in adjacent districts. Other unfilled vacancies remain to be filled.

DISTINGUISHED SERVICE MEDAL AWARDED TO BRIGADIER GENERAL LEON A. FOX

Brigadier General Leon A. Fox, M.C., U.S.A., F.A.P.H.A., was recently awarded the Distinguished Service Medal for "exceptionally meritorious and distinguished service in a position of great responsibility while serving as Health Director for the Caribbean and North Atlantic Engineer Division . . . During this period, in addition to his normal duties as Division Health Director, General Fox was charged with carrying out a health program of great magnitude in connection with construction work in the Caribbean bases, northern ferry routes, ferry routes across Africa, Pan American highway, Northwest Division and foreign missions located in Africa, Iran, and Iraq. Throughout, General Fox has demonstrated great foresight, energy, organizing ability, and inspiring leadership, which have contributed in large part to the successful prosecution of these important projects," according to a report in the *Journal of the A.M.A.*

RESEARCH FUND HONORS DR. VERANUS A. MOORE

President Edmund E. Day of Cornell University, Ithaca, N. Y., recently announced the endowment of a scholarship to be known as the Veranus A. Moore Research Fund. It has been established through an anonymous gift of $10,400 in honor of the memory of the former Dean of the State Veterinary College, Ithaca. The income from the fund, according to Dr. Day, will be used for research in clinical and preventive medicine.

Dr. Moore joined the American Public Health Association in 1896 and was a Fellow of the Laboratory Section. He died in 1931.

MEXICO CREATES A MINISTRY OF PUBLIC HEALTH AND ASSISTANCE

According to reports from Mexico City, the government has created a new Ministry of Public Health and Assistance effective October 15. Dr. Gustavo Baz is the Secretary or Minister. The Subsecretary is Dr. Manuel Martinez Baez; Chief of the Division of Public Health and Assistance in the States and Territories, Dr. Gustavo Viniegra; Chief of the Division of Public Assistance in the Federal District, Dr. Raul Fournier; Chief of the

Division of Maternal and Child Hygiene, Dr. Pedro Daniel Martinez; Chief of the Division of Epidemiology, Dr. Salvador Iturbide Alvirez; Chief of Division of Public Health in the Federal District, Dr. Salvador Gonzalez Reynoso; Chief of the Division of Foods and Drug Control, Dr. Demetrio Mayoral Pardo; and, in the Division of Sanitary Engineering, Engineer Luis Gerrero Arciniega.

Dr. Garza Brito continues as Dean of the School of Public Health and Hygiene.

Dr. Manuel Gonzalez Rivera is the Chief of the Division of Health and Education.

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION ELECTS OFFICERS

At its meeting on January 27 in Boston, the Massachusetts Public Health Association elected the following officers for the coming year:

President: Harold W. Stevens, M.D.
Vice-Presidents: L. Jackson Smith, M.D., and Charles F. Wilinsky, M.D.
Secretary: Alexander A. Robertson
Treasurer: Catharine Atwood
Executive Committee: Ethel G. Brooks, R.N., Manfred Bowditch, G. Donald Buckner, Roy F. Feemster, M.D., and Edwin H. Place, M.D.
Representative to the Governing Council of the American Public Health Association: Raymond S. Patterson, Ph.D.
Alternate: L. Jackson Smith, M.D.

DR. CRABTREE APPOINTED TO UNRRA

The press on February 1 carried the announcement of the appointment of Dr. James A. Crabtree, formerly of Tennessee, who has been identified with health and safety activities of the federal government since 1934, as Acting Chief of the Health Division of the United Nations Relief and Rehabilitation Administration. The appointment was made by Herbert H. Lehman, Director-General, UNRRA. Dr. Crabtree was graduated from the University of Tennesee in 1925 and took postgraduate work at Johns Hopkins University School of Hygiene and Public Health in Baltimore.

TROPICAL MEDICINE COURSE ANNOUNCED AT DELAMAR INSTITUTE

Harry S. Mustard, M.D., the Director of the De Lamar Institute of Public Health, New York, N. Y., has announced that the Institute as a part of the College of Physicians and Surgeons of Columbia University would offer an intensive program of instruction in certain aspects of tropical medicine for a period beginning March 20 and continuing through May 13. Persons interested in the course should communicate with Dr. Mustard.

COLONEL BAYNE-JONES APPOINTED DIRECTOR OF TYPHUS COMMISSION

The War Department, Washington, D. C., recently announced the appointment of Colonel Stanhope Bayne-Jones * of the Army Medical Corps as Director of the Typhus Commission, succeeding Brigadier General Leon A. Fox * of the Army Medical Corps, who asked to be relieved as Director and to be appointed Field Director in order to give all his time to the field work of the Commission, which has been operating abroad, particularly in the Middle East. Colonel Bayne-Jones is also Assistant Director of the Division of Preventive Medicine, Office of the Surgeon General.

PERSONALS

Central States

WALTER H. HARTUNG, M.D.,* has been appointed Health Officer of Toledo, Ohio, according to the *Journal of the A.M.A.*, succeeding EARL E. KLEINSCHMIDT, M.D., DR.P.H.,* resigned. Dr. Hartung was formerly acting City

* Fellow A.P.H.A.
† Member A.P.H.A.

Health Director and State Health Officer. More recently he has been Director of the Medical Relief Bureau at the City Health Department. Dr. Kleinschmidt has joined the U. S. Public Health Service Reserve, Washington.

WILLIAM F. MAYES, M.D., has resigned as Director of the Division of Maternal and Child Health of the Kansas State Board of Health, Topeka, and has been appointed Regional Medical Consultant for the Children's Bureau, Washington. At present Dr. Mayes is located in the Kansas City District.

GEORGIA V. MILLS, M.D.,† of Detroit, Mich., has been appointed Deputy Health Officer of the Saginaw City Health Unit.

JOHN W. O'NEILL, M.D., of St. Charles, Mich., has been appointed Health Officer of District No. 5, including Newaygo, Lake, and Oceana Counties, Mich., succeeding ALBERT C. EDWARDS, M.D.† Dr. O'Neill's headquarters will be in White Cloud.

JEROME J. SIEVERS, M.D.,* has been appointed Chief of the Division of Communicable Diseases in the Illinois State Department of Health, Springfield, effective January 1. Dr. Sievers has been Assistant State Health Officer and succeeds the late JOHN J. MCSHANE, M.D.

LARS W. SWITZER, M.D.,† of Manistee, Mich., resigned as Director of the Manistee-Benzie County Health Department December 1 to become associated with General Motors Corporation, Bay City.

JAMES F. WILSON, M.D.,† Rogers City, Mich., Health Director of District No. 4, has been appointed to a similar position with the Manistee-Benzie County Health Department.

* Fellow A.P.H.A.
† Member A.P.H.A.

Eastern States

MARK D. DUBY, M.D., has been appointed Health Officer at Schuylerville, N. Y.

LALLA MARY COGGANS,* former supervisor at the Lobenstine School for Nurse Midwives in New York, N. Y., has been appointed to the position of regional consultant nurse for the Children's Bureau in the southwest area, with headquarters in New Orleans. Miss Coggans was formerly the maternal and child health consultant nurse in the state of Florida. She is a graduate of Teachers College, Columbia University, and the Lobenstine School for Nurse Midwives.

GRACE E. LUTMAN, M.D., M.P.H.,† has been appointed assistant in the Department of Epidemiology at the Harvard School of Public Health, Boston. Dr. Lutman received her degree in 1942 at Harvard. She will assist DR. W. LLOYD AYCOCK in giving the course in epidemiology.

MRS. HAROLD V. MILLIGAN of New York, N. Y., has been appointed National Commander of the Woman's Field Army of the American Society for the Control of Cancer, according to an announcement made by DR. CLARENCE C. LITTLE, the Managing Director. Mrs. Milligan is President of the National Council of Women and recently has served as Director of the Women's Division of the National Association of Manufacturers, New York.

TERRY S. MONTAGUE, M.D., of Gouverneur, N. Y., has been appointed Health Officer of Watertown to succeed GEORGE D. VAN DOREN, M.D., who has retired.

RUFUS S. REEVES, M.D., has been appointed Director of Health of Philadelphia, Pa., and MEYER SOLIS-COHEN, M.D., has been appointed Assistant Director.

HUGH H. SHAW, M.D., Health Officer of Utica, N. Y., according to the *Journal of the A.M.A.*, on January 1 entered his 25th year as Health Officer.

Southern States

REUBEN B. CALDWELL, Baldwyn, Miss., has been appointed a member of the State Board of Health to succeed JAMES W. LIPSCOMB, M.D., Columbus, President of the Board since 1932.

WILLIAM Y. GARRETT, M.D.,† of Eastville, Va., was recently appointed Health Officer of Newport News, succeeding DR. WILLARD W. GRIGGS, who resigned to enter private practice.

KENNETH M. LYNCH, M.D., who since 1940 has been Chairman of the South Carolina State Board of Health, has been appointed Dean of the Medical College of the State of South Carolina, Charleston, succeeding ROBERT WILSON, M.D., retired.

GEORGE N. MACDONELL, M.D.,† former Health Officer of Miami, Fla., has been appointed Chief of the Medical Service Division of the Dade County Defense Council. Dr. MacDonell succeeds DR. GÉRARD RAAP, Miami, who recently resigned because of ill health.

FRED MAYES, M.D.,† recently appointed Regional Medical Consultant of the Children's Bureau, Washington, has been assigned as Consultant for the Southeastern States with offices in New Orleans, La.

SHERMAN S. PINTO, M.D.,† New Orleans, La., Supervisor of the Industrial Hygiene Section of the Louisiana State Board of Health, has resigned to accept a commission in the Medical Corps of the U. S. Army.

DEAN W. ROBERTS, M.D., of Baltimore, Md., has been appointed Chief of the Bureau of Child Hygiene of the Maryland State Department of Health, Baltimore, succeeding EDWARD DAVENS, M.D., of Baltimore, who is in military service.

CYRUS M. SHIPP, M.D., of Bay St. Louis, Miss., Director of the Hancock County Health Department, was recently chosen President-elect of the Mississippi Public Health Association, and JOHN B. GRANT, McComb, was installed as President.

BRIGADIER GENERAL JAMES STEVENS SIMMONS,* U. S. Army, Chief of the Preventive Medicine Service, Office of the Surgeon General, U. S. Army, on December 22 had conferred upon him, by the University of Pennsylvania, the honorary degree of Doctor of Science.

CHARLES P. STEVICK, M.D.,† of Beaufort, N. C., Health Officer of Cartaret County, has been appointed Acting Director of the Division of Epidemiology of the State Board of Health with headquarters at Raleigh. It is reported that Dr. Stevick will continue in this position for the duration.

Western States

LILLIAN M. HALL, M.D., has recently been appointed Health Officer of Concord, Calif.

RUDOLPH R. LANG, M.D., Passed Assistant Surgeon, U. S. Public Health Service, was assigned as Health Officer of Deschutes County, Ore., succeeding FREDERICK P. ROGERS, M.D., who is entering military service.

L. J. LULL, M.D.,* who has been Director of Venereal Disease Control in the Colorado State Board of Health, Denver, has resigned to accept an appointment with the Idaho State Department of Public Health, Boise, as Director of the Division of Local Health Service, effective January 7.

LOUIE A. MAULDING, M.D., of Nyssa,

* Fellow A.P.H.A.
† Member A.P.H.A.

Ore., has been appointed Health Officer of Malheur, succeeding CLYDE R. WALKER, M.D., who resigned.

CHARLES EDWARD SMITH, M.D.,* Professor and Head of the Department of Public Health and Preventive Medicine, Stanford University School of Medicine, San Francisco, Calif., has been appointed Chairman of the California State Board of Health.

Hawaii

CHARLES L. WILBAR, JR., M.D.,† Honolulu, has been appointed President and Executive Officer of the Territory of Hawaii Board of Health, following his release from the army. His army service included an assignment as Health Officer for the County of Maui.

RICHARD K. C. LEE, M.D.,† Honolulu, formerly Deputy Territorial Commissioner of Public Health, has become Director of Public Health, a newly created position. He has at various times served as Acting Director of the Bureaus of Maternal and Child Health, Communicable Diseases and Tuberculosis, and as Acting Territorial Commissioner of Public Health.

Puerto Rico

MAJOR GUSTAVE J. DAMMIN, M.C.,† San Juan, P. R., after 2½ years with the Antilles Medical Department Laboratory, has returned to the United States to join another laboratory unit.

DEATHS

PAUL HANSEN,* a member of the firm of Greeley and Hansen, Chicago, Ill., since May, 1920, died on February 6. A widely experienced engineer in design and construction of water supply and sewerage works in large cities, and an expert witness of rate valuation waterworks, Mr. Hansen joined the American Public Health Association in 1905, and has been a Charter Fellow of the Engineering Section since 1922.

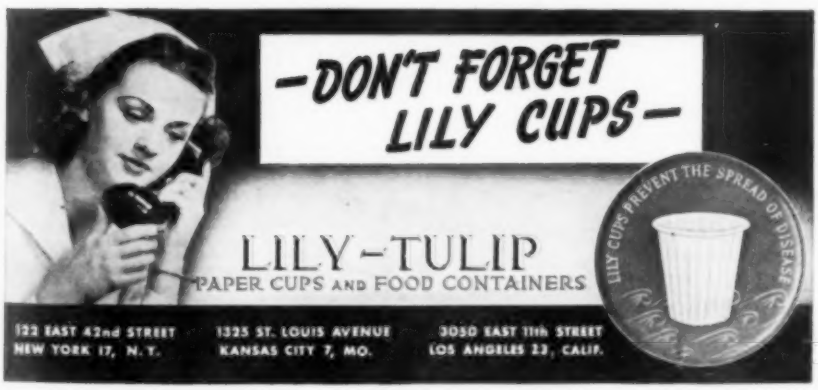
H. ALLEN MOYER, M.D.,† State Health Commissioner of Michigan, died on January 6.

CONFERENCES AND DATES

American Association of School Administrators. Regional Meeting. Kansas City, Kans. March 8–10.

American Medical Association. Chicago, Ill. June 12–16.

American Water Works Association
Minnesota Section—Lowry Hotel, St. Paul, Minn. March 16–17.
Illinois Section—Peoria, Ill. April 11–13.



American Water Works Association (Cont.)
Indiana Section—Antlers Hotel, Indianapolis, Ind. April 13–14.
Canadian Section—General Brock Hotel, Niagara Falls, Ont. April 19–21.
Michigan Section—Otsego Hotel, Jackson, Mich. April 26–28.
New York Section—Hotel Utica, Utica, N. Y. April 27–28.
Montana Section—Baxter Hotel, Bozeman, Mont. May 5–6.
Southeastern Section — Poinsett Hotel, Greenville, S. C. May 8–10.
Pacific Northwest Section—Olympian Hotel, Olympia, Wash. May 12–13.
Ohio Section—Hotels Fort Hayes and Chittenden, Columbus, Ohio.
Child Study Association of America. Hotel Roosevelt, New York, N. Y. March 6.
Institute of Food Technologists—Fifth Annual Meeting. Edgewater Beach Hotel, Chicago, Ill. May 29–31.
National Conference of Social Work. Cleveland, Ohio. May 21–27.
National Fire Protection Association. Philadelphia, Pa. May 8–11.
National Restaurant Week. May 8–14.
National Tuberculosis Association. Stevens Hotel, Chicago, Ill. May 10–12.

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